SPEC® CFP2006 Result

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Hewlett-Packard Company

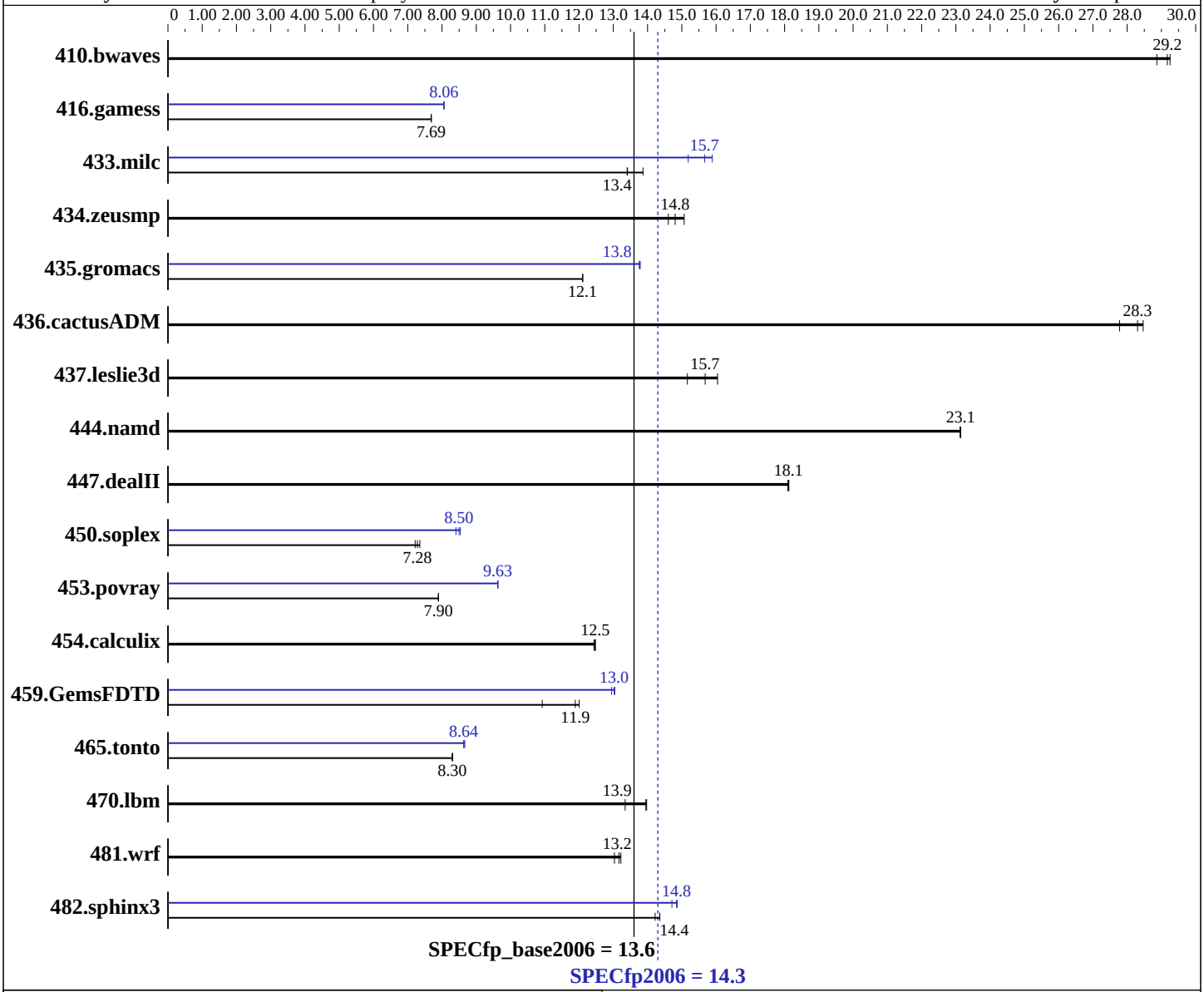
HP Integrity rx2620
(1.4GHz/12MB Dual-Core Intel Itanium 2)

SPECfp®2006 = 14.3

SPECfp_base2006 = 13.6

CPU2006 license: 03
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Oct-2006
Hardware Availability: Sep-2006
Software Availability: Sep-2006



Hardware

CPU Name:	Dual-Core Intel Itanium 2 9015
CPU Characteristics:	1.4GHz/12MB, 400MHz FSB
CPU MHz:	1400
FPU:	Integrated
CPU(s) enabled:	2 cores, 1 chip, 2 cores/chip
CPU(s) orderable:	1-2 chips
Primary Cache:	16 KB I + 16 KB D on chip per core
Secondary Cache:	1 MB I + 256 KB D on chip per core

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Software

Operating System:	HPUX11i-TCOE B.11.23.0609
Compiler:	HP C/aC++ Developer's Bundle C.11.23.12 HP Fortran90 Compiler B.11.23.32
Auto Parallel:	No
File System:	vxfs
System State:	Multi-user
Base Pointers:	32-bit
Peak Pointers:	32-bit
Other Software:	None

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L3 Cache: 6 MB I+D on chip per core
Other Cache: None
Memory: 24 GB (12x2GB DIMMs)
Disk Subsystem: 146GB 10K RPM SCSI
Other Hardware: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	471	28.9	**466**	**29.2**	465	29.3	471	28.9	**466**	**29.2**	465	29.3
416.gamess	2549	7.68	**2547**	**7.69**	2547	7.69	2430	8.06	2431	8.05	**2430**	**8.06**
433.milc	**684**	**13.4**	685	13.4	662	13.9	604	15.2	**586**	**15.7**	578	15.9
434.zeusmp	604	15.1	623	14.6	**615**	**14.8**	604	15.1	623	14.6	**615**	**14.8**
435.gromacs	590	12.1	590	12.1	**590**	**12.1**	518	13.8	**519**	**13.8**	519	13.8
436.cactusADM	430	27.8	420	28.5	**422**	**28.3**	430	27.8	420	28.5	**422**	**28.3**
437.leslie3d	620	15.2	586	16.0	**599**	**15.7**	620	15.2	586	16.0	**599**	**15.7**
444.namd	347	23.1	347	23.1	**347**	**23.1**	347	23.1	347	23.1	**347**	**23.1**
447.dealII	632	18.1	631	18.1	**632**	**18.1**	632	18.1	631	18.1	**632**	**18.1**
450.soplex	1156	7.22	1134	7.35	**1145**	**7.28**	**982**	**8.50**	977	8.54	992	8.41
453.povray	674	7.90	674	7.89	**674**	**7.90**	**552**	**9.63**	552	9.63	553	9.63
454.calculix	663	12.4	**661**	**12.5**	661	12.5	663	12.4	**661**	**12.5**	661	12.5
459.GemsFDTD	971	10.9	884	12.0	**892**	**11.9**	813	13.0	**815**	**13.0**	819	13.0
465.tonto	1185	8.31	**1185**	**8.30**	1186	8.30	1140	8.63	1136	8.67	**1139**	**8.64**
470.lbm	1030	13.3	983	14.0	**985**	**13.9**	1030	13.3	983	14.0	**985**	**13.9**
481.wrf	857	13.0	845	13.2	**848**	**13.2**	857	13.0	845	13.2	**848**	**13.2**
482.sphinx3	**1358**	**14.4**	1357	14.4	1371	14.2	1325	14.7	**1313**	**14.8**	1311	14.9

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

Operating System Notes

```
The system had the September 2006 HP-UX 11i v2 Technical Computing
Operating Environment (TCOE) and compilers installed, along with
the following patches:

PHSS_34858  linker + fdp cumulative patch
PHSS_34853  Math Library Cumulative Patch
PHSS_34854  Integrity Unwind Library
PHSS_34855  HP C Compiler (A.06.12)
PHSS_34856  aC++ Compiler (A.06.12)
PHSS_34857  u2comp/be/plugin library patch
PHSS_34395  FORTRAN I/O Library [libIO77]
PHSS_34397  FORTRAN Intrinsics [libF90 B.11.23.17]
PHSS_34399  Fortran Product Patch, v3.1 to v3.1.1
PHKL_34020  Perfmon enhancements and Itanium Dual-Core
```

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Operating System Notes (Continued)

```
The following kernel tunables were set, in addition to the defaults
set by the Technical Computing OE:

dbc_max_pct=20
dbc_min_pct=20
maxdsiz=3221225472
maxssiz=401604608
```

Platform Notes

```
The "cpuconfig" EFI command was used prior to booting
  to deconfigure processors.

Although two cores were enabled during testing,
  the SPEC CPU2006 benchmarks used only one core.
```

Base Compiler Invocation

C benchmarks:
```
/opt/ansic/bin/cc -Ae
```

C++ benchmarks:
```
/opt/aCC/bin/aCC -Aa
```

Fortran benchmarks:
```
/opt/fortran90/bin/f90
```

Benchmarks using both Fortran and C:
```
/opt/ansic/bin/cc -Ae /opt/fortran90/bin/f90
```

Base Portability Flags

453.povray: `-DSPEC_CPU_NEED_INVHYP`
454.calculix: `-DSPEC_CPU_NOZMODIFIER`
481.wrf: `-DNOUNDERSCORE +noppu`

Base Optimization Flags

C benchmarks:
```
+Ofaster +Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M
-Wl,+pi,64M -Wl,-N
```

C++ benchmarks:
```
+Ofaster +Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M
-Wl,+pi,64M -Wl,-N
```

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Base Optimization Flags (Continued)

Fortran benchmarks:
+Ofaster -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M -Wl,-N

Benchmarks using both Fortran and C:
+Ofaster +Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M
-Wl,+pi,64M -Wl,-N

Peak Compiler Invocation

C benchmarks:
/opt/ansic/bin/cc -Ae

C++ benchmarks:
/opt/aCC/bin/aCC -Aa

Fortran benchmarks:
/opt/fortran90/bin/f90

Benchmarks using both Fortran and C:
/opt/ansic/bin/cc -Ae /opt/fortran90/bin/f90

Peak Portability Flags

453.povray: -DSPEC_CPU_NEED_INVHYP
454.calculix: -DSPEC_CPU_NOZMODIFIER
481.wrf: -DNOUNDERSCORE +noppu

Peak Optimization Flags

C benchmarks:

433.milc: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2) +Ofaster
+Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M
-Wl,+pi,64M +Onoparmsoverlap -Wl,-N

470.lbm: basepeak = yes

482.sphinx3: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2) +Ofaster
+Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M
-Wl,+pi,64M +Onoparmsoverlap

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Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: basepeak = yes

447.dealII: basepeak = yes

450.soplex: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2) +Ofaster +Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M +Onoparmsoverlap -Wl,-N

453.povray: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2) +Ofaster +Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: +Ofaster -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M +Odataprefetch=direct -Wl,-N

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2) +Ofaster -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M +Odataprefetch=direct -Wl,-N

465.tonto: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2) +Ofaster -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M +Odataprefetch=direct

Benchmarks using both Fortran and C:

435.gromacs: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2) +Ofaster +Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M +Onoparmsoverlap

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.11.html

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.11.xml`

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

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