



SPEC® CFP2006 Result

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Hewlett-Packard Company

SPECfp®_rate2006 = 35.3

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

SPECfp_rate_base2006 = 34.1

CPU2006 license: 03

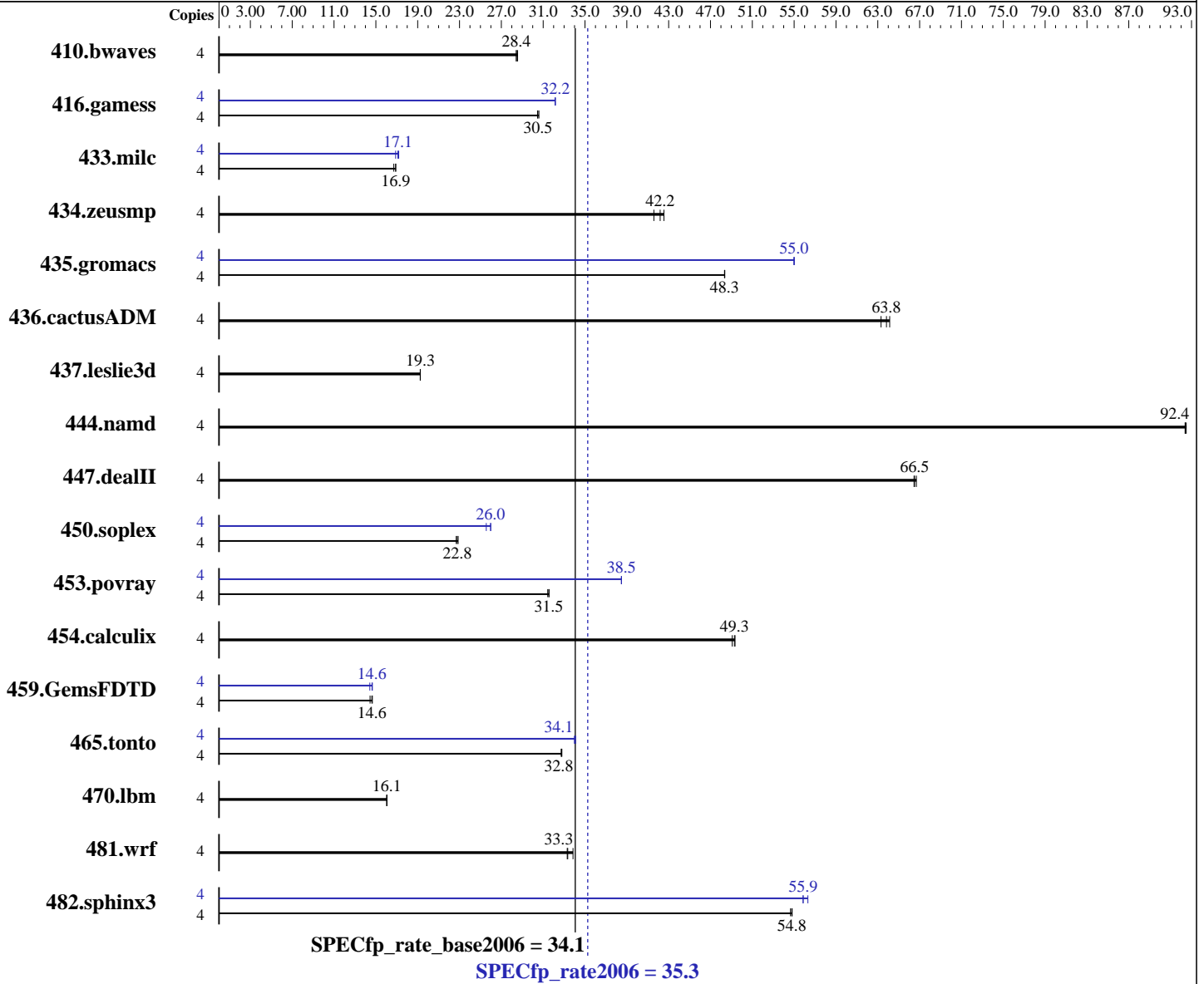
Test date: Oct-2006

Test sponsor: Hewlett-Packard Company

Hardware Availability: Sep-2006

Tested by: Hewlett-Packard Company

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: 4 cores, 2 chips, 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

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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	1904	28.6	1912	28.4	<u>1912</u>	<u>28.4</u>	4	1904	28.6	1912	28.4	<u>1912</u>	<u>28.4</u>
416.gamess	4	<u>2568</u>	<u>30.5</u>	2571	30.5	2560	30.6	4	2435	32.2	2437	32.1	<u>2435</u>	<u>32.2</u>
433.milc	4	<u>2173</u>	<u>16.9</u>	2197	16.7	2173	16.9	4	2174	16.9	2136	17.2	<u>2146</u>	<u>17.1</u>
434.zeusmp	4	<u>863</u>	<u>42.2</u>	855	42.6	875	41.6	4	<u>863</u>	<u>42.2</u>	855	42.6	875	41.6
435.gromacs	4	<u>591</u>	<u>48.3</u>	590	48.4	591	48.3	4	519	55.0	519	55.0	<u>519</u>	<u>55.0</u>
436.cactusADM	4	745	64.1	<u>749</u>	<u>63.8</u>	755	63.3	4	745	64.1	<u>749</u>	<u>63.8</u>	755	63.3
437.leslie3d	4	1954	19.2	1953	19.3	<u>1953</u>	<u>19.3</u>	4	1954	19.2	1953	19.3	<u>1953</u>	<u>19.3</u>
444.namd	4	347	92.4	<u>347</u>	<u>92.4</u>	347	92.5	4	347	92.4	<u>347</u>	<u>92.4</u>	347	92.5
447.dealII	4	688	66.5	686	66.7	<u>688</u>	<u>66.5</u>	4	688	66.5	686	66.7	<u>688</u>	<u>66.5</u>
450.soplex	4	1471	22.7	1459	22.9	<u>1464</u>	<u>22.8</u>	4	<u>1285</u>	<u>26.0</u>	1284	26.0	1305	25.6
453.povray	4	677	31.4	<u>675</u>	<u>31.5</u>	674	31.6	4	553	38.5	<u>553</u>	<u>38.5</u>	553	38.5
454.calculix	4	672	49.1	669	49.3	<u>670</u>	<u>49.3</u>	4	672	49.1	669	49.3	<u>670</u>	<u>49.3</u>
459.GemsFDTD	4	2894	14.7	2938	14.4	<u>2903</u>	<u>14.6</u>	4	2893	14.7	2943	14.4	<u>2900</u>	<u>14.6</u>
465.tonto	4	<u>1201</u>	<u>32.8</u>	1200	32.8	1203	32.7	4	1158	34.0	1155	34.1	<u>1155</u>	<u>34.1</u>
470.lbm	4	<u>3424</u>	<u>16.1</u>	3423	16.1	3425	16.0	4	<u>3424</u>	<u>16.1</u>	3423	16.1	3425	16.0
481.wrf	4	<u>1340</u>	<u>33.3</u>	1342	33.3	1320	33.9	4	<u>1340</u>	<u>33.3</u>	1342	33.3	1320	33.9
482.sphinx3	4	1427	54.6	1422	54.8	<u>1423</u>	<u>54.8</u>	4	1384	56.3	1396	55.9	<u>1396</u>	<u>55.9</u>

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
```

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
```

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
```



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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`

C++ benchmarks:

444.namd: `basepeak = yes`

447.dealIII: `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`

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Peak Optimization Flags (Continued)

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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