SPEC® CFP2006 Result

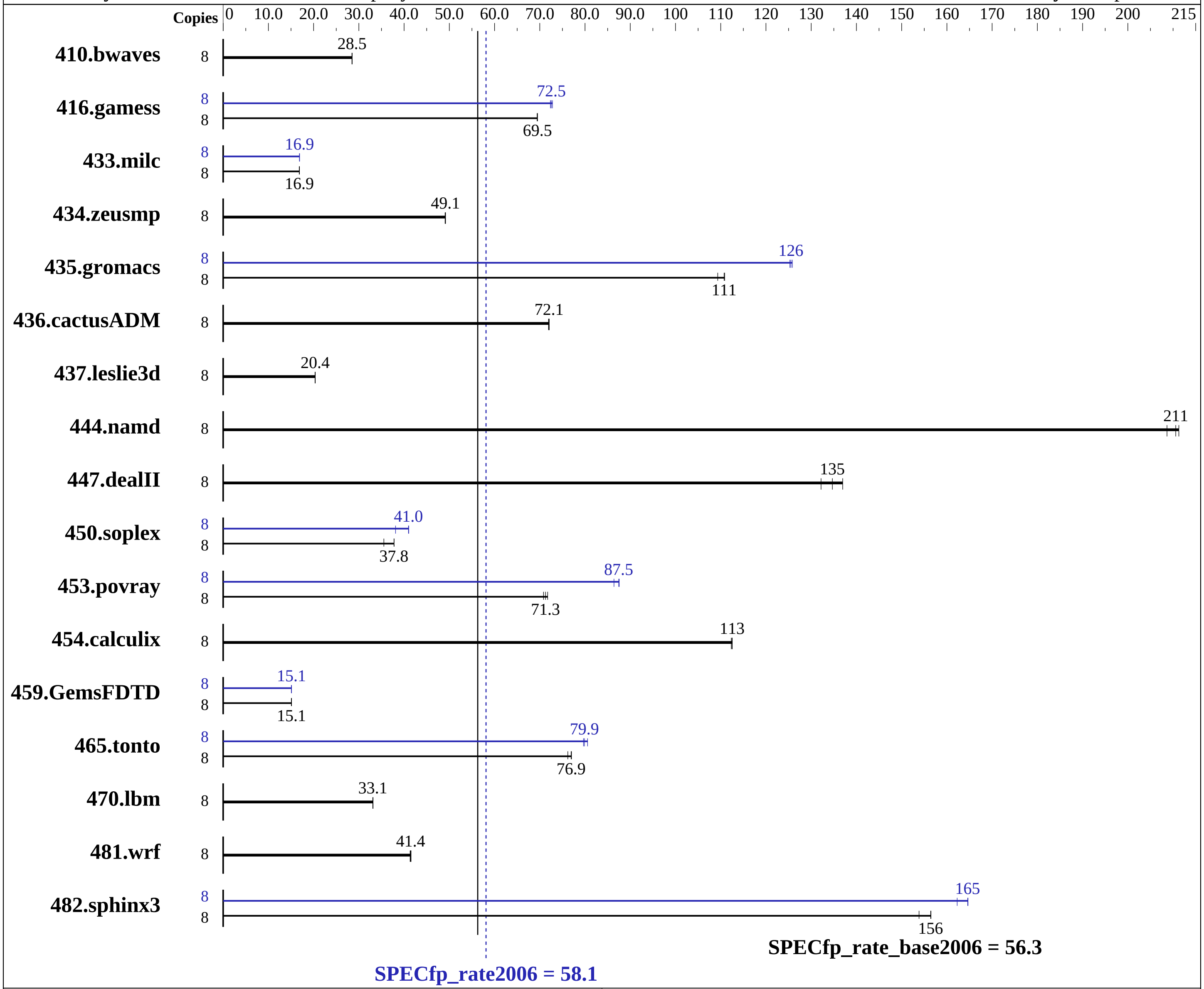
Hewlett-Packard Company

HP Integrity rx4640 (1.6GHz/24MB Dual-Core Intel Itanium 2)

SPECfp®_rate2006 = 58.1

SPECfp_rate_base2006 = 56.3

CPU2006 license:	03	**Test date:**	Sep-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 9050
CPU Characteristics:	1.6GHz/24MB, 400MHz FSB
CPU MHz:	1600
FPU:	Integrated
CPU(s) enabled:	8 cores, 4 chips, 2 cores/chip
CPU(s) orderable:	1-4 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:	12 MB I+D on chip per core
Other Cache:	None
Memory:	32 GB (16x2GB DIMMs)
Disk Subsystem:	36GB 15K RPM SCSI
Other Hardware:	None

Results Table

	Base							Peak						
Benchmark	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	3819	28.5	3813	28.5	**3817**	**28.5**	8	3819	28.5	3813	28.5	**3817**	**28.5**
416.gamess	8	**2255**	**69.5**	2254	69.5	2257	69.4	8	**2159**	**72.5**	2152	72.8	2165	72.4
433.milc	8	**4356**	**16.9**	4362	16.8	4354	16.9	8	4352	16.9	4348	16.9	**4350**	**16.9**
434.zeusmp	8	**1481**	**49.1**	1481	49.2	1484	49.1	8	**1481**	**49.1**	1481	49.2	1484	49.1
435.gromacs	8	522	109	**516**	**111**	515	111	8	456	125	**455**	**126**	454	126
436.cactusADM	8	**1327**	**72.1**	1329	71.9	1326	72.1	8	**1327**	**72.1**	1329	71.9	1326	72.1
437.leslie3d	8	3695	20.4	**3695**	**20.4**	3699	20.3	8	3695	20.4	**3695**	**20.4**	3699	20.3
444.namd	8	307	209	**305**	**211**	304	211	8	307	209	**305**	**211**	304	211
447.dealII	8	**680**	**135**	692	132	668	137	8	**680**	**135**	692	132	668	137
450.soplex	8	1878	35.5	1766	37.8	**1767**	**37.8**	8	1751	38.1	1626	41.0	**1629**	**41.0**
453.povray	8	**597**	**71.3**	601	70.8	593	71.7	8	493	86.4	486	87.6	**487**	**87.5**
454.calculix	8	588	112	**587**	**113**	586	113	8	588	112	**587**	**113**	586	113
459.GemsFDTD	8	5621	15.1	5625	15.1	**5622**	**15.1**	8	5619	15.1	5618	15.1	**5619**	**15.1**
465.tonto	8	1022	77.0	1033	76.2	**1023**	**76.9**	8	988	79.7	977	80.6	**986**	**79.9**
470.lbm	8	3317	33.1	**3320**	**33.1**	3321	33.1	8	3317	33.1	**3320**	**33.1**	3321	33.1
481.wrf	8	2162	41.3	2152	41.5	**2156**	**41.4**	8	2162	41.3	2152	41.5	**2156**	**41.4**
482.sphinx3	8	1014	154	**997**	**156**	996	156	8	961	162	947	165	**947**	**165**

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`(-hp_cc) `+Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M +Ofaster`(-hp_f90) `-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

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

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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(-hp_cc) +Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M +Onoparmsoverlap +Ofaster(-hp_f90)

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.20090715.06.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.06.xml

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

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