SPEC® CFP2006 Result

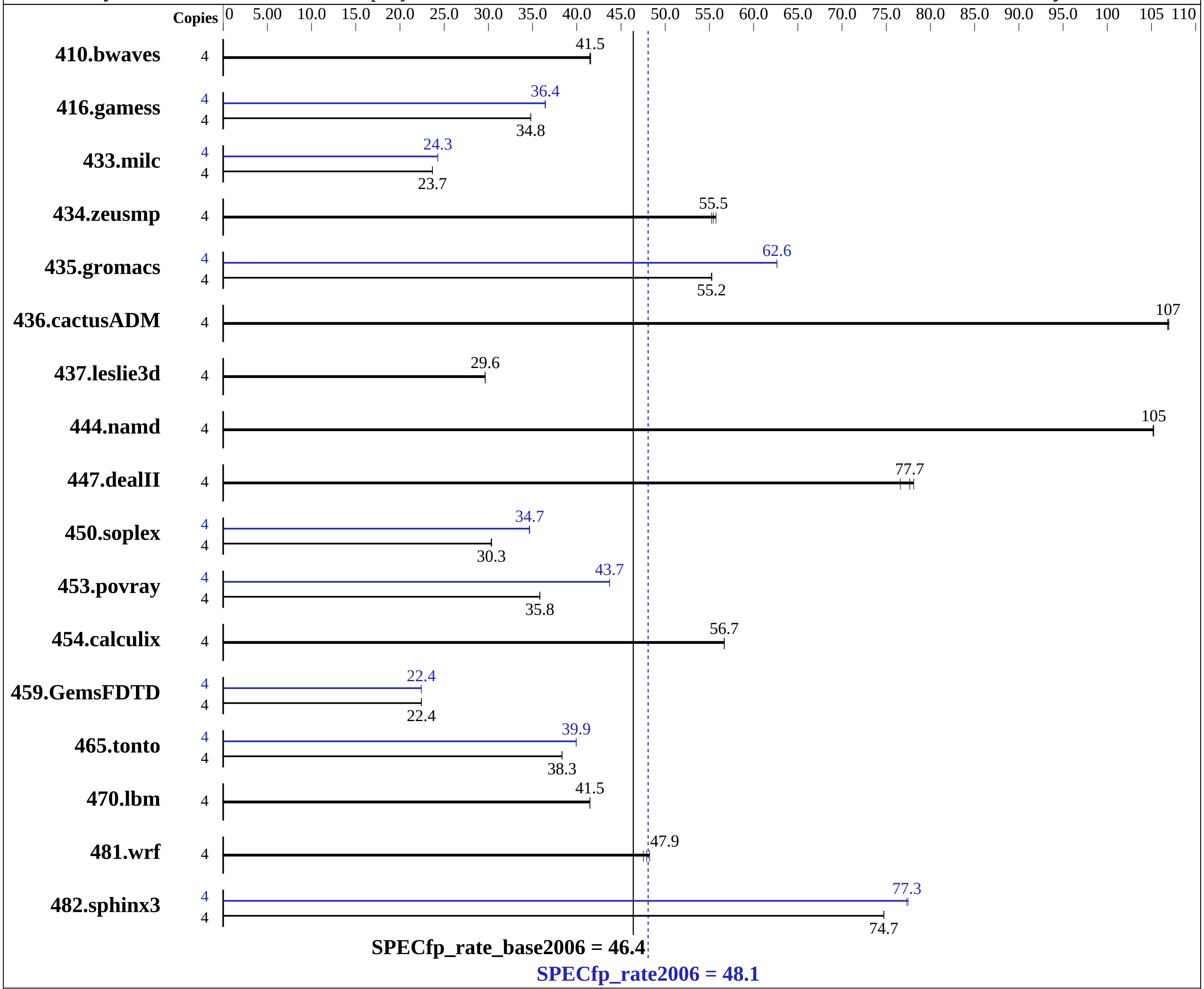
Hewlett-Packard Company

HP Integrity rx2660
(1.6GHz/18MB Dual-Core Intel Itanium 2)

SPECfp®_rate2006 = 48.1

SPECfp_rate_base2006 = 46.4

CPU2006 license:	03	**Test date:**	Jan-2007
Test sponsor:	Hewlett-Packard Company	**Hardware Availability:**	Feb-2007
Tested by:	Hewlett-Packard Company	**Software Availability:**	Feb-2007



Hardware

CPU Name:	Dual-Core Intel Itanium 2 9040
CPU Characteristics:	1.6GHz/18MB, 533MHz FSB
CPU MHz:	1600
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

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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:	9 MB I+D on chip per core
Other Cache:	None
Memory:	8 GB (4x2GB DIMMs)
Disk Subsystem:	73GB 10K RPM SAS
Other Hardware:	None

Results Table

	Base							Peak						
Benchmark	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	1307	41.6	**1309**	**41.5**	1311	41.5	4	1307	41.6	**1309**	**41.5**	1311	41.5
416.gamess	4	2252	34.8	**2252**	**34.8**	2251	34.8	4	2148	36.5	**2150**	**36.4**	2151	36.4
433.milc	4	1552	23.7	**1551**	**23.7**	1551	23.7	4	1511	24.3	**1512**	**24.3**	1512	24.3
434.zeusmp	4	653	55.7	**656**	**55.5**	659	55.3	4	653	55.7	**656**	**55.5**	659	55.3
435.gromacs	4	**517**	**55.2**	517	55.3	517	55.2	4	456	62.6	456	62.6	**456**	**62.6**
436.cactusADM	4	**447**	**107**	447	107	447	107	4	**447**	**107**	447	107	447	107
437.leslie3d	4	**1269**	**29.6**	1268	29.6	1269	29.6	4	**1269**	**29.6**	1268	29.6	1269	29.6
444.namd	4	305	105	**305**	**105**	305	105	4	305	105	**305**	**105**	305	105
447.dealII	4	**589**	**77.7**	586	78.1	597	76.6	4	**589**	**77.7**	586	78.1	597	76.6
450.soplex	4	1101	30.3	**1100**	**30.3**	1098	30.4	4	962	34.7	**962**	**34.7**	964	34.6
453.povray	4	594	35.8	594	35.8	**594**	**35.8**	4	487	43.7	**487**	**43.7**	487	43.7
454.calculix	4	582	56.7	**582**	**56.7**	582	56.7	4	582	56.7	**582**	**56.7**	582	56.7
459.GemsFDTD	4	**1893**	**22.4**	1893	22.4	1892	22.4	4	**1893**	**22.4**	1893	22.4	1894	22.4
465.tonto	4	1026	38.3	**1027**	**38.3**	1027	38.3	4	986	39.9	**986**	**39.9**	985	39.9
470.lbm	4	**1325**	**41.5**	1325	41.5	1325	41.5	4	**1325**	**41.5**	1325	41.5	1325	41.5
481.wrf	4	940	47.5	**933**	**47.9**	926	48.2	4	940	47.5	**933**	**47.9**	926	48.2
482.sphinx3	4	**1043**	**74.7**	1043	74.7	1043	74.7	4	1006	77.5	**1008**	**77.3**	1008	77.3

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`

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 +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.20090715.07.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.07.xml

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

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