SPEC® CFP2006 Result

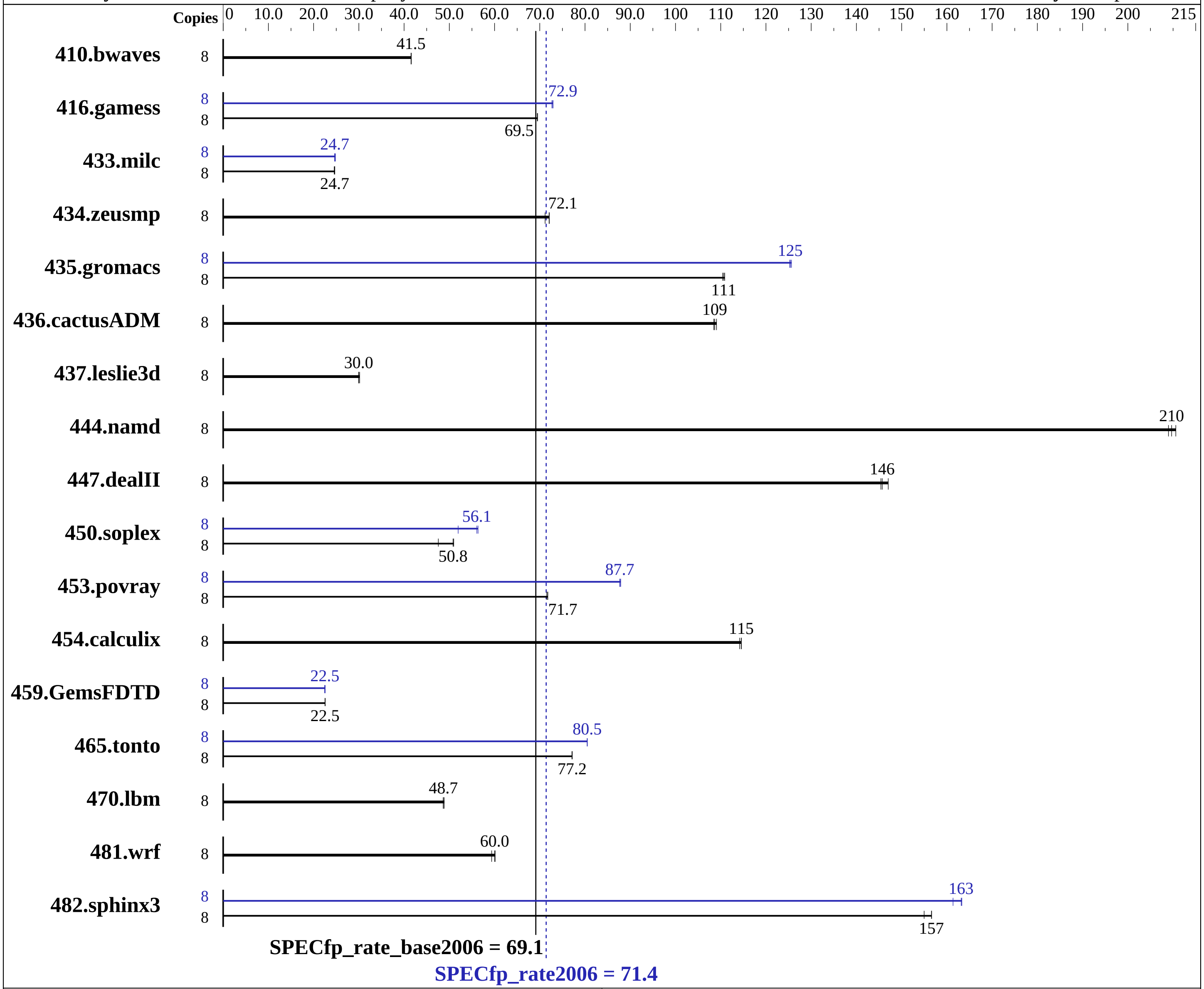
Hewlett-Packard Company

HP Integrity rx6600 (1.6GHz/24MB Dual-Core Intel Itanium 2)

SPECfp®_rate2006 = 71.4

SPECfp_rate_base2006 = 69.1

CPU2006 license: 03		**Test date:**	Aug-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, 533MHz 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:	24 GB (24x1GB DIMMs)
Disk Subsystem:	73GB 10K RPM SAS
Other Hardware:	None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	2615	41.6	2618	41.5	**2617**	**41.5**	8	2615	41.6	2618	41.5	**2617**	**41.5**
416.gamess	8	2254	69.5	2255	69.5	**2255**	**69.5**	8	2155	72.7	2148	72.9	**2149**	**72.9**
433.milc	8	**2977**	**24.7**	2975	24.7	2991	24.6	8	2960	24.8	**2977**	**24.7**	2979	24.7
434.zeusmp	8	1010	72.1	1023	71.2	**1010**	**72.1**	8	1010	72.1	1023	71.2	**1010**	**72.1**
435.gromacs	8	517	110	**516**	**111**	515	111	8	**456**	**125**	456	125	455	126
436.cactusADM	8	**880**	**109**	877	109	881	108	8	**880**	**109**	877	109	881	108
437.leslie3d	8	2492	30.2	2512	29.9	**2509**	**30.0**	8	2492	30.2	2512	29.9	**2509**	**30.0**
444.namd	8	307	209	**306**	**210**	305	211	8	307	209	**306**	**210**	305	211
447.dealII	8	**628**	**146**	622	147	629	145	8	**628**	**146**	622	147	629	145
450.soplex	8	1403	47.6	1309	51.0	**1313**	**50.8**	8	1284	52.0	1184	56.3	**1190**	**56.1**
453.povray	8	595	71.5	593	71.8	**593**	**71.7**	8	485	87.7	**485**	**87.7**	484	87.9
454.calculix	8	576	115	**576**	**115**	578	114	8	576	115	**576**	**115**	578	114
459.GemsFDTD	8	3770	22.5	3765	22.5	**3768**	**22.5**	8	3783	22.4	3765	22.5	**3772**	**22.5**
465.tonto	8	**1020**	**77.2**	1021	77.1	1020	77.2	8	978	80.5	**978**	**80.5**	978	80.5
470.lbm	8	2249	48.9	**2258**	**48.7**	2258	48.7	8	2249	48.9	**2258**	**48.7**	2258	48.7
481.wrf	8	1505	59.4	1486	60.1	**1489**	**60.0**	8	1505	59.4	1486	60.1	**1489**	**60.0**
482.sphinx3	8	1006	155	996	157	**996**	**157**	8	955	163	**956**	**163**	966	161

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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