# SPEC® CFP2006 Result



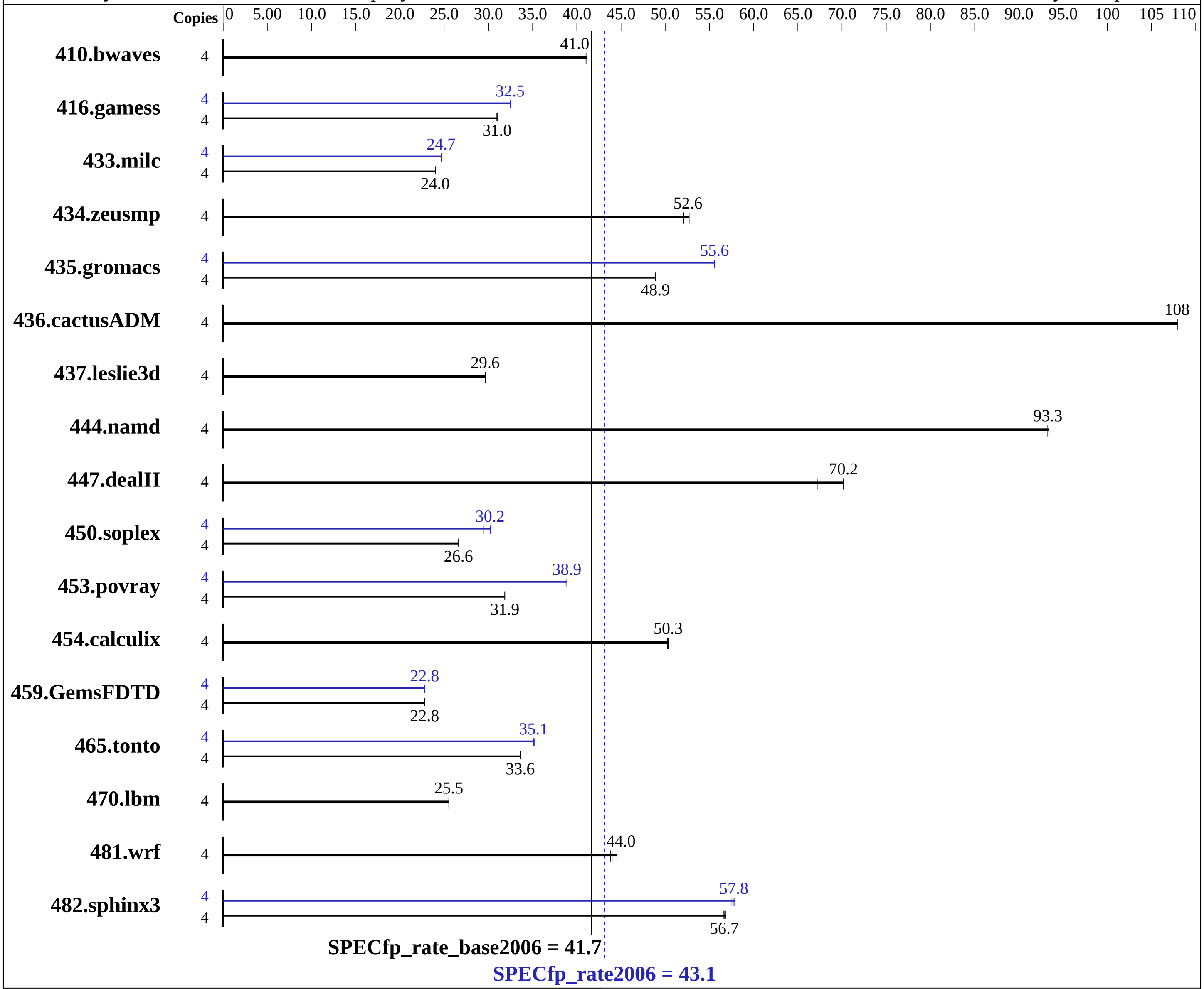
## Hewlett-Packard Company

HP Integrity rx3600
(1.4GHz/12MB Dual-Core Intel Itanium 2)

SPECfp®_rate2006 = 43.1

SPECfp_rate_base2006 = 41.7

| | | | |
|---|---|---|---|
| **CPU2006 license:** 03 | | **Test date:** | Jan-2007 |
| **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 9020 |
| CPU Characteristics: | 1.4GHz/12MB, 533MHz 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 |

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### Software

| | |
|---|---|
| Operating System: | HPUX11i-TCOE B.11.23.0609 |
| Compiler: | HP C/aC++ Developer's Bundle C.11.23.12<br>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 |

L3 Cache: 6 MB I+D on chip per core
Other Cache: None
Memory: 16 GB (8x2GB DIMMs, AD124A 8-DIMM memory carrier)
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 | 4 | 1321 | 41.1 | 1325 | 41.0 | **1324** | **41.0** | 4 | 1321 | 41.1 | 1325 | 41.0 | **1324** | **41.0** |
| 416.gamess | 4 | 2530 | 31.0 | **2528** | **31.0** | 2526 | 31.0 | 4 | **2412** | **32.5** | 2412 | 32.5 | 2412 | 32.5 |
| 433.milc | 4 | 1531 | 24.0 | **1531** | **24.0** | 1530 | 24.0 | 4 | 1489 | 24.7 | **1489** | **24.7** | 1489 | 24.7 |
| 434.zeusmp | 4 | 691 | 52.7 | 699 | 52.1 | **692** | **52.6** | 4 | 691 | 52.7 | 699 | 52.1 | **692** | **52.6** |
| 435.gromacs | 4 | **584** | **48.9** | 584 | 48.9 | 584 | 48.9 | 4 | **514** | **55.6** | 514 | 55.6 | 514 | 55.6 |
| 436.cactusADM | 4 | 443 | 108 | 443 | 108 | **443** | **108** | 4 | 443 | 108 | 443 | 108 | **443** | **108** |
| 437.leslie3d | 4 | 1269 | 29.6 | 1268 | 29.7 | **1268** | **29.6** | 4 | 1269 | 29.6 | 1268 | 29.7 | **1268** | **29.6** |
| 444.namd | 4 | **344** | **93.3** | 344 | 93.4 | 344 | 93.2 | 4 | **344** | **93.3** | 344 | 93.4 | 344 | 93.2 |
| 447.dealII | 4 | 652 | 70.2 | **652** | **70.2** | 681 | 67.2 | 4 | 652 | 70.2 | **652** | **70.2** | 681 | 67.2 |
| 450.soplex | 4 | 1277 | 26.1 | **1253** | **26.6** | 1252 | 26.6 | 4 | 1132 | 29.5 | **1105** | **30.2** | 1103 | 30.2 |
| 453.povray | 4 | 668 | 31.8 | 668 | 31.9 | **668** | **31.9** | 4 | 549 | 38.8 | 547 | 38.9 | **547** | **38.9** |
| 454.calculix | 4 | 657 | 50.3 | 655 | 50.4 | **656** | **50.3** | 4 | 657 | 50.3 | 655 | 50.4 | **656** | **50.3** |
| 459.GemsFDTD | 4 | 1861 | 22.8 | 1863 | 22.8 | **1862** | **22.8** | 4 | 1862 | 22.8 | **1862** | **22.8** | 1861 | 22.8 |
| 465.tonto | 4 | **1171** | **33.6** | 1171 | 33.6 | 1171 | 33.6 | 4 | 1118 | 35.2 | **1121** | **35.1** | 1121 | 35.1 |
| 470.lbm | 4 | **2153** | **25.5** | 2153 | 25.5 | 2153 | 25.5 | 4 | **2153** | **25.5** | 2153 | 25.5 | 2153 | 25.5 |
| 481.wrf | 4 | 1020 | 43.8 | 1003 | 44.6 | **1015** | **44.0** | 4 | 1020 | 43.8 | 1003 | 44.6 | **1015** | **44.0** |
| 482.sphinx3 | 4 | 1377 | 56.6 | 1371 | 56.9 | **1376** | **56.7** | 4 | 1348 | 57.9 | **1349** | **57.8** | 1355 | 57.5 |

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.

Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 10:15:37 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 6 February 2007.