# SPEC® CFP2006 Result

## Hewlett-Packard Company

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

<table>
<thead>
<tr>
<th>Specfp®2006</th>
<th>14.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specfp_base2006</td>
<td>13.6</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Dual-Core Intel Itanium 2 9015  
- **CPU Characteristics:** 1.4GHz/12MB, 400MHz FSB  
- **CPU MHz:** 1400  
- **FPU:** Integrated  
- **CPU(s) enabled:** 2 cores, 1 chip, 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  
- **Auto Parallel:** No  
- **File System:** vxfs  
- **Base Pointers:** 32-bit  
- **Peak Pointers:** 32-bit  
- **Other Software:** None

### Performance Results

- **410.bwaves**: 8.06  
- **416.gamess**: 7.69  
- **433.milc**: 13.4  
- **434.zeusmp**: 14.8  
- **435.gromacs**: 13.8  
- **436.cactusADM**: 28.3  
- **437.leslie3d**: 15.7  
- **444.namd**: 23.1  
- **447.dealII**: 18.1  
- **450.soplex**: 8.50  
- **453.povray**: 9.63  
- **454.calculix**: 12.5  
- **459.GemsFDTD**: 13.0  
- **465.tonto**: 8.64  
- **470.lbm**: 13.2  
- **481.wrf**: 13.9  
- **482.sphinx3**: 14.4

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SPECfp2006 = 14.3
SPECfp_base2006 = 13.6

CPU2006 license: 03
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company
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

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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</table>

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 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

Platform Notes

The "cpuconfig" EFI command was used prior to booting to deconfigure processors.

Although two cores were enabled during testing, the SPEC CPU2006 benchmarks used only one core.

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

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Test date: Oct-2006
Hardware Availability: Sep-2006
Software Availability: Sep-2006

Base Optimization Flags (Continued)

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

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Peak Optimization Flags (Continued)

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

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
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Software Availability: Sep-2006

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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