Hewlett-Packard Company
HP Integrity rx3600 (1.6GHz/18MB Dual-Core Intel Itanium 2)

SPEC<sup>®</sup> fp<sup>®</sup> rate<sub>2006</sub> = 48.4
SPECfp<sub>rate</sub>_base<sub>2006</sub> = 46.7

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

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

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

"Continued on next page"
**SPEC CFP2006 Result**

**Hewlett-Packard Company**

HP Integrity rx3600 (1.6GHz/18MB Dual-Core Intel Itanium 2)

**SPECfp_rate2006 = 48.4**

**SPECfp_rate_base2006 = 46.7**

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

**L3 Cache:** 9 MB I+D on chip per core  
**Other Cache:** None  
**Memory:** 16 GB (6x2GB DIMMs, AD124A 8-DIMM memory carrier)  
**Disk Subsystem:** 73GB 10K RPM SAS  
**Other Hardware:** None

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### Results Table

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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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SPEC CFP2006 Result

Hewlett-Packard Company
HP Integrity rx3600 (1.6GHz/18MB Dual-Core Intel Itanium 2)

SPECfp_rate2006 = 48.4
SPECfp_rate_base2006 = 46.7

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

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
SPEC CFP2006 Result

Hewlett-Packard Company
HP Integrity rx3600 (1.6GHz/18MB Dual-Core Intel Itanium 2) SPECfp_rate2006 = 48.4
SPECfp_rate_base2006 = 46.7

CPU2006 license: 03
Test sponsor: Hewlett-Packard Company
Test date: Sep-2006
Tested by: Hewlett-Packard Company
Hardware Availability: Nov-2006
Software Availability: Sep-2006

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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Hewlett-Packard Company
HP Integrity rx3600 (1.6GHz/18MB Dual-Core Intel Itanium 2)

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SPECfp_rate_base2006 = 46.7

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

Peak Optimization Flags (Continued)

Fortran benchmarks:
410.bwaves: basepeak = yes
416.games: +Ofaster -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+p1,64M +Odapprefetch=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,+p1,64M +Odapprefetch=direct -Wl,-N
465.tonto: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2) +Ofaster -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+p1,64M +Odapprefetch=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,+p1,64M +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.20090715.08.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.08.xml