Hewlett-Packard Company

HP Integrity rx3600 (1.66GHz/18MB Dual-Core Intel Itanium)

SPECfp®_rate2006 = 54.8
SPECfp_rate_base2006 = 53.4

CPU2006 license: 03
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company
Test date: Sep-2007
Hardware Availability: Nov-2007
Software Availability: Sep-2007

### Hardware
- **CPU Name:** Dual-Core Intel Itanium 9140M
- **CPU Characteristics:** 1.66GHz/18MB, 667MHz FSB
- **CPU MHz:** 1666
- **FPU:** Integrated
- **CPU(s) enabled:** 4 cores, 2 chips, 2 cores/chip, 2 threads/core
- **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-MCOE B.11.31 (LR)
- **Compiler:** HP C/aC++ Developer's Bundle C.11.31.03
- **Auto Parallel:** No
- **File System:** vxfs
- **System State:** Multi-user
- **Base Pointers:** 32-bit
- **Peak Pointers:** 32-bit
- **Other Software:** MicroQuill Smartheap 8.1

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Continued on next page
### Results Table

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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 2007 HP-UX 11i v3 Mission Critical Operating Environment (MCOE) and compilers installed, along with the following patches:

- PHSS_36349 linker + fdp cumulative patch
- PHSS_36351 Math Library Cumulative Patch
- PHSS_36352 Integrity Unwind Library
- PHSS_36350 aC++ Runtime (A.06.15)
- PHSS_36354 assembler patch

The following kernel tunables were set, in addition to the defaults set by the Mission Critical OE:

```
maxdsiz=3221225472
```

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CPU2006 license: 03
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Tested by: Hewlett-Packard Company
Hardware Availability: Nov-2007
Software Availability: Sep-2007

Operating System Notes (Continued)

maxssiz=401604608
maxrsessiz=41943040

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
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
### Peak Compiler Invocation (Continued)

**C++ benchmarks:**
```bash
/opt/aCC/bin/aCC -Aa
```

**Fortran benchmarks:**
```bash
/opt/fortran90/bin/f90
```

**Benchmarks using both Fortran and C:**
```bash
/opt/ansic/bin/cc -Ae /opt/fortran90/bin/f90
```

### Peak Portability Flags

<table>
<thead>
<tr>
<th>Benchmark</th>
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</thead>
<tbody>
<tr>
<td>453.povray</td>
<td>-DSPEC_CPU_NEED_INVHYP</td>
</tr>
<tr>
<td>481.wrf</td>
<td>-DNOUNDERSCORE +noppu</td>
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### Peak Optimization Flags

**C benchmarks:**

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<th>Benchmark</th>
<th>Flags</th>
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<td>433.milc</td>
<td>+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</td>
</tr>
<tr>
<td>470.lbm</td>
<td>basepeak = yes</td>
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<tr>
<td>482.sphinx3</td>
<td>+Oprofile=collect:all(pass 1) +Oprofile=use(pass 2) +Ofaster +Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M +Onoparmsoverlap</td>
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**C++ benchmarks:**

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<tr>
<td>444.namd</td>
<td>basepeak = yes</td>
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<tr>
<td>447.dealII</td>
<td>basepeak = yes</td>
</tr>
<tr>
<td>450.soplex</td>
<td>+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</td>
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<td>453.povray</td>
<td>+Oprofile=collect:all(pass 1) +Oprofile=use(pass 2) +Ofaster +Otype_safety=ansi -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M</td>
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**Fortran benchmarks:**

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<td>410.bwaves</td>
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CPU2006 license: 03
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Peak Optimization Flags (Continued)

416.game5: +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

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.07.xml

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For other inquiries, please contact webmaster@spec.org.

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