## SPEC® CFP2006 Result

### Hewlett-Packard Company

**HP Integrity rx2660 (1.66GHz/18MB Dual-Core Intel Itanium)**

| SPECfp®_rate2006 | 55.8 |
| SPECfp_rate_base2006 | 54.5 |

| 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 |

| **Copies** | **5.00** | **10.00** | **15.00** | **20.00** | **25.00** | **30.00** | **35.00** | **40.00** | **45.00** | **50.00** | **55.00** | **60.00** | **65.00** | **70.00** | **75.00** | **80.00** | **85.00** | **90.00** | **95.00** | **100** | **105** | **110** | **115** | **120** | **125** |
|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 410.bwaves | 4 | 49.8 | 45.8 | 42.7 | 28.6 | 28.6 | 63.6 | 68.9 | 60.4 | 124 |
| 416.gamess | 4 | 49.8 | 45.8 | 42.7 | 28.6 | 28.6 | 63.6 | 68.9 | 60.4 | 124 |
| 433.milc | 4 | 49.8 | 45.8 | 42.7 | 28.6 | 28.6 | 63.6 | 68.9 | 60.4 | 124 |
| 434.zeusmp | 4 | 49.8 | 45.8 | 42.7 | 28.6 | 28.6 | 63.6 | 68.9 | 60.4 | 124 |
| 435.gromacs | 4 | 49.8 | 45.8 | 42.7 | 28.6 | 28.6 | 63.6 | 68.9 | 60.4 | 124 |
| 436.cactusADM | 4 | 49.8 | 45.8 | 42.7 | 28.6 | 28.6 | 63.6 | 68.9 | 60.4 | 124 |
| 437.leslie3d | 4 | 49.8 | 45.8 | 42.7 | 28.6 | 28.6 | 63.6 | 68.9 | 60.4 | 124 |
| 444.namd | 4 | 49.8 | 45.8 | 42.7 | 28.6 | 28.6 | 63.6 | 68.9 | 60.4 | 124 |
| 447.dealII | 4 | 49.8 | 45.8 | 42.7 | 28.6 | 28.6 | 63.6 | 68.9 | 60.4 | 124 |
| 450.soplex | 4 | 49.8 | 45.8 | 42.7 | 28.6 | 28.6 | 63.6 | 68.9 | 60.4 | 124 |
| 453.povray | 4 | 49.8 | 45.8 | 42.7 | 28.6 | 28.6 | 63.6 | 68.9 | 60.4 | 124 |
| 454.calculix | 4 | 49.8 | 45.8 | 42.7 | 28.6 | 28.6 | 63.6 | 68.9 | 60.4 | 124 |
| 459.GemsFDTD | 4 | 49.8 | 45.8 | 42.7 | 28.6 | 28.6 | 63.6 | 68.9 | 60.4 | 124 |
| 465.tonto | 4 | 49.8 | 45.8 | 42.7 | 28.6 | 28.6 | 63.6 | 68.9 | 60.4 | 124 |
| 470.lbm | 4 | 49.8 | 45.8 | 42.7 | 28.6 | 28.6 | 63.6 | 68.9 | 60.4 | 124 |
| 481.wrf | 4 | 49.8 | 45.8 | 42.7 | 28.6 | 28.6 | 63.6 | 68.9 | 60.4 | 124 |
| 482.sphinx3 | 4 | 49.8 | 45.8 | 42.7 | 28.6 | 28.6 | 63.6 | 68.9 | 60.4 | 124 |

### 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/C++ 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

---

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
Hewlett-Packard Company
HP Integrity rx2660 (1.66GHz/18MB Dual-Core Intel Itanium)

SPECfp_rate2006 = 55.8
SPECfp_rate_base2006 = 54.5

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>4</td>
<td>1091</td>
<td>49.8</td>
<td>1092</td>
<td>49.8</td>
<td>1090</td>
<td>49.9</td>
<td>1090</td>
<td>49.9</td>
</tr>
<tr>
<td>416.gamess</td>
<td>4</td>
<td>1834</td>
<td>42.7</td>
<td>1834</td>
<td>42.7</td>
<td>1833</td>
<td>42.7</td>
<td>1833</td>
<td>42.7</td>
</tr>
<tr>
<td>433.milc</td>
<td>4</td>
<td>1283</td>
<td>28.6</td>
<td>1283</td>
<td>28.6</td>
<td>1283</td>
<td>28.6</td>
<td>1283</td>
<td>28.6</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>4</td>
<td>571</td>
<td>63.7</td>
<td>572</td>
<td>63.6</td>
<td>573</td>
<td>63.6</td>
<td>571</td>
<td>63.7</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>4</td>
<td>472</td>
<td>60.5</td>
<td>473</td>
<td>60.4</td>
<td>474</td>
<td>60.3</td>
<td>474</td>
<td>60.3</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>4</td>
<td>386</td>
<td>124</td>
<td>386</td>
<td>124</td>
<td>385</td>
<td>124</td>
<td>385</td>
<td>124</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>4</td>
<td>971</td>
<td>38.7</td>
<td>971</td>
<td>38.7</td>
<td>971</td>
<td>38.7</td>
<td>971</td>
<td>38.7</td>
</tr>
<tr>
<td>444.namd</td>
<td>4</td>
<td>301</td>
<td>106</td>
<td>302</td>
<td>106</td>
<td>301</td>
<td>106</td>
<td>301</td>
<td>106</td>
</tr>
<tr>
<td>447.dealII</td>
<td>4</td>
<td>558</td>
<td>82.1</td>
<td>562</td>
<td>81.4</td>
<td>555</td>
<td>82.5</td>
<td>558</td>
<td>82.1</td>
</tr>
<tr>
<td>450.soplex</td>
<td>4</td>
<td>865</td>
<td>38.6</td>
<td>865</td>
<td>38.6</td>
<td>865</td>
<td>38.6</td>
<td>849</td>
<td>39.3</td>
</tr>
<tr>
<td>453.povray</td>
<td>4</td>
<td>584</td>
<td>36.4</td>
<td>585</td>
<td>36.4</td>
<td>588</td>
<td>36.2</td>
<td>466</td>
<td>45.6</td>
</tr>
<tr>
<td>454.calculix</td>
<td>4</td>
<td>502</td>
<td>65.8</td>
<td>499</td>
<td>66.2</td>
<td>498</td>
<td>66.2</td>
<td>502</td>
<td>65.8</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>4</td>
<td>1578</td>
<td>26.9</td>
<td>1580</td>
<td>26.9</td>
<td>1579</td>
<td>26.9</td>
<td>1579</td>
<td>26.9</td>
</tr>
<tr>
<td>465.tonto</td>
<td>4</td>
<td>779</td>
<td>50.5</td>
<td>778</td>
<td>50.6</td>
<td>778</td>
<td>50.6</td>
<td>758</td>
<td>51.9</td>
</tr>
<tr>
<td>470.lbm</td>
<td>4</td>
<td>1143</td>
<td>48.1</td>
<td>1144</td>
<td>48.1</td>
<td>1143</td>
<td>48.1</td>
<td>1143</td>
<td>48.1</td>
</tr>
<tr>
<td>481.wrf</td>
<td>4</td>
<td>824</td>
<td>54.2</td>
<td>824</td>
<td>54.2</td>
<td>844</td>
<td>53.0</td>
<td>824</td>
<td>54.2</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>4</td>
<td>753</td>
<td>104</td>
<td>754</td>
<td>103</td>
<td>752</td>
<td>104</td>
<td>809</td>
<td>96.3</td>
</tr>
</tbody>
</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

Continued on next page
Hewlett-Packard Company

HP Integrity rx2660 (1.66GHz/18MB Dual-Core Intel Itanium)

SPEC CFP2006 Result

Please note: The full results are continued on the next page.
Hewlett-Packard Company

HP Integrity rx2660 (1.66GHz/18MB Dual-Core Intel Itanium)

SPECfp_rate2006 = 55.8
SPECfp_rate_base2006 = 54.5

Peak Compiler Invocation (Continued)

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
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

Fortran benchmarks:

410.bwaves: basepeak = yes

Continued on next page
SPEC CFP2006 Result

Hewlett-Packard Company

HP Integrity rx2660 (1.66GHz/18MB Dual-Core Intel Itanium)

SPECfp_rate2006 = 55.8
SPECfp_rate_base2006 = 54.5

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

Peak Optimization Flags (Continued)

416.gamess: +O faster -Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M
+Od ataprefetch=direct -Wl,-N

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: +O profile=collect:all(pass 1) +O profile=use(pass 2) +O faster
-Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M
+Od ataprefetch=direct -Wl,-N

465.tonto: +O profile=collect:all(pass 1) +O profile=use(pass 2) +O faster
-Wl,-a,archive_shared -Wl,+pd,64M -Wl,+pi,64M
+Od ataprefetch=direct

Benchmarks using both Fortran and C:

435.gromacs: +O profile=collect:all(pass 1) +O profile=use(pass 2) +O faster
+O type_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

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.0.1.
Originally published on 9 November 2007.