



SPEC® CINT2006 Result

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Hewlett-Packard Company

SPECint®2006 = 13.2

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

SPECint_base2006 = 12.2

CPU2006 license: 03

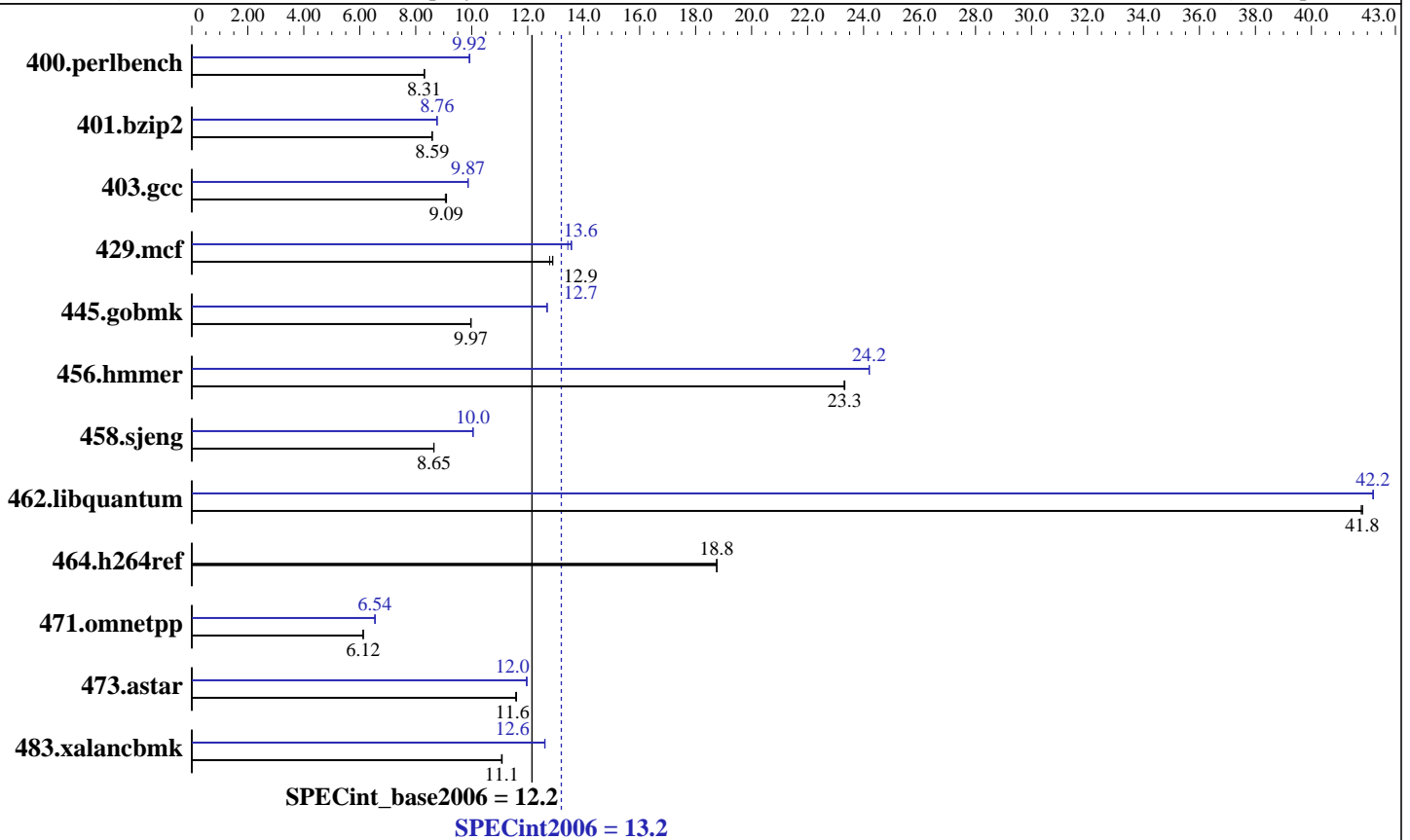
Test date: Jan-2007

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: 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
 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

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
 System State: Multi-user
 Base Pointers: 32-bit
 Peak Pointers: 32-bit
 Other Software: MicroQuill Smartheap 8.0



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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	1176	8.30	<u>1176</u>	<u>8.31</u>	1175	8.31	985	9.92	984	9.93	<u>985</u>	<u>9.92</u>
401.bzip2	<u>1124</u>	<u>8.59</u>	1124	8.58	1123	8.59	<u>1101</u>	<u>8.76</u>	1101	8.76	1102	8.76
403.gcc	889	9.06	885	9.10	<u>885</u>	<u>9.09</u>	815	9.87	816	9.86	<u>816</u>	<u>9.87</u>
429.mcf	713	12.8	707	12.9	<u>708</u>	<u>12.9</u>	<u>673</u>	<u>13.6</u>	672	13.6	679	13.4
445.gobmk	<u>1052</u>	<u>9.97</u>	1051	9.98	1053	9.96	826	12.7	<u>827</u>	<u>12.7</u>	827	12.7
456.hammer	<u>400</u>	<u>23.3</u>	400	23.3	400	23.3	386	24.2	<u>385</u>	<u>24.2</u>	385	24.2
458.sjeng	1400	8.65	1398	8.65	<u>1399</u>	<u>8.65</u>	1205	10.0	1204	10.0	<u>1204</u>	<u>10.0</u>
462.libquantum	495	41.8	<u>496</u>	<u>41.8</u>	496	41.8	491	42.2	491	42.2	<u>491</u>	<u>42.2</u>
464.h264ref	1180	18.8	1180	18.8	<u>1180</u>	<u>18.8</u>	1180	18.8	1180	18.8	<u>1180</u>	<u>18.8</u>
471.omnetpp	1021	6.12	<u>1021</u>	<u>6.12</u>	1021	6.12	954	6.55	955	6.54	<u>955</u>	<u>6.54</u>
473.astar	<u>605</u>	<u>11.6</u>	605	11.6	607	11.6	587	12.0	586	12.0	<u>587</u>	<u>12.0</u>
483.xalancbmk	622	11.1	<u>623</u>	<u>11.1</u>	624	11.1	<u>547</u>	<u>12.6</u>	547	12.6	547	12.6

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

```

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

```



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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`

Base Portability Flags

400.perlbench: `-DSPEC_CPU_HPUX_IA64`

403.gcc: `-DSPEC_CPU_HPUX`

462.libquantum: `-DSPEC_CPU_HPUX`

483.xalancbmk: `-DSPEC_CPU_HPUX_IA64`

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`

`/usr/lib/hpux32/libCsup.a /opt/smartheap/SmartHeap_8/lib/libsmartheap.a`

Peak Compiler Invocation

C benchmarks:

`/opt/ansic/bin/cc -Ae`

C++ benchmarks:

`/opt/aCC/bin/aCC -Aa`



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Peak Portability Flags

400.perlbench: -DSPEC_CPU_HPUX_IA64
403.gcc: -DSPEC_CPU_HPUX
462.libquantum: -DSPEC_CPU_HPUX
483.xalancbmk: -DSPEC_CPU_HPUX_IA64

Peak Optimization Flags

C benchmarks:

400.perlbench: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2)
+Ofaster +Otype_safety=ansi -Wl,-a,archive_shared
-Wl,+pd,64M -Wl,+pi,64M -Wl,-N

401.bzip2: Same as 400.perlbench

403.gcc: Same as 400.perlbench

429.mcf: Same as 400.perlbench

445.gobmk: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2)
+Ofaster +Otype_safety=ansi -Wl,-a,archive_shared
-Wl,+pd,64M -Wl,+pi,64M +Odataprefetch=direct

456.hmmmer: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2)
+Ofaster +Otype_safety=ansi -Wl,-a,archive_shared
-Wl,+pd,64M -Wl,+pi,64M

458.sjeng: Same as 445.gobmk

462.libquantum: Same as 456.hmmmer

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2)
+Ofaster +Otype_safety=ansi -Wl,-a,archive_shared
-Wl,+pd,64M -Wl,+pi,64M
/usr/lib/hpux32/libCsup.a /opt/smartheap/SmartHeap_8/lib/libsmarheap.a

473.astar: +Ofaster +Otype_safety=ansi -Wl,-a,archive_shared
-Wl,+pd,64M -Wl,+pi,64M +Onoparmsoverlap
/usr/lib/hpux32/libCsup.a /opt/smartheap/SmartHeap_8/lib/libsmarheap.a

483.xalancbmk: +Oprofile=collect:all(pass 1) +Oprofile=use(pass 2)
+Ofaster +Otype_safety=ansi -Wl,-a,archive_shared
-Wl,+pd,64M -Wl,+pi,64M +Onoparmsoverlap
/usr/lib/hpux32/libCsup.a /opt/smartheap/SmartHeap_8/lib/libsmarheap.a



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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

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

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