



SPEC® CINT2006 Result

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Hewlett-Packard Company

SPECint®2006 = 15.1

HP Integrity rx4640 (1.6GHz/24MB Dual-Core Intel Itanium 2)

SPECint_base2006 = 13.8

CPU2006 license: 03

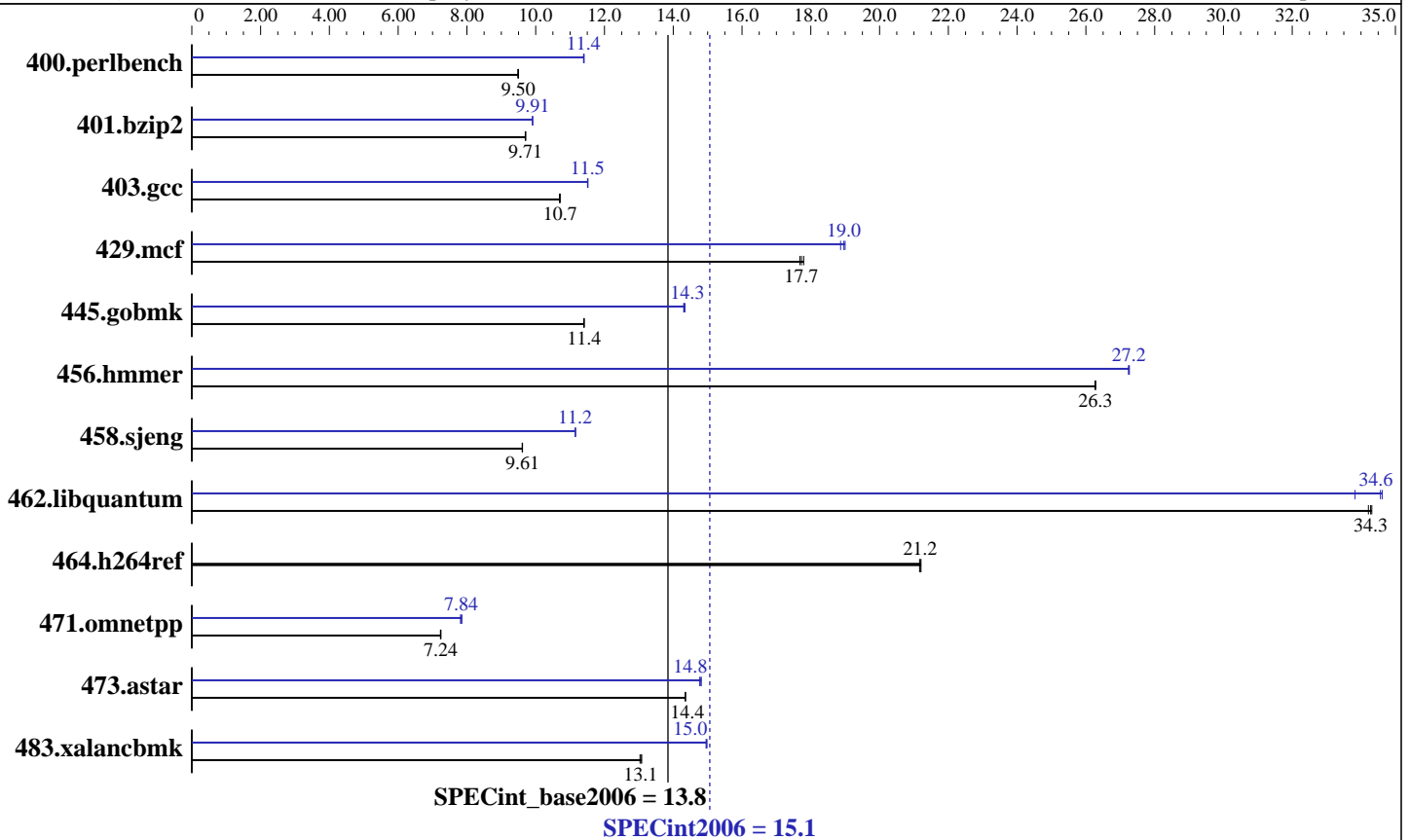
Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Sep-2006

Hardware Availability: Sep-2006

Software Availability: Sep-2006



Hardware

CPU Name: Dual-Core Intel Itanium 2 9050
 CPU Characteristics: 1.6GHz/24MB, 400MHz FSB
 CPU MHz: 1600
 FPU: Integrated
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip
 CPU(s) orderable: 1-4 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: 12 MB I+D on chip per core
 Other Cache: None
 Memory: 32 GB (16x2GB DIMMs)
 Disk Subsystem: 36GB 15K RPM SCSI
 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	1031	9.48	1028	9.50	<u>1029</u>	<u>9.50</u>	856	11.4	858	11.4	<u>857</u>	<u>11.4</u>
401.bzip2	995	9.70	<u>994</u>	<u>9.71</u>	994	9.71	974	9.91	<u>974</u>	<u>9.91</u>	974	9.91
403.gcc	753	10.7	<u>752</u>	<u>10.7</u>	752	10.7	699	11.5	700	11.5	<u>699</u>	<u>11.5</u>
429.mcf	513	17.8	516	17.7	<u>514</u>	<u>17.7</u>	483	18.9	<u>481</u>	<u>19.0</u>	480	19.0
445.gobmk	920	11.4	<u>920</u>	<u>11.4</u>	919	11.4	733	14.3	<u>733</u>	<u>14.3</u>	731	14.3
456.hammer	355	26.3	<u>355</u>	<u>26.3</u>	355	26.3	343	27.2	342	27.3	<u>342</u>	<u>27.2</u>
458.sjeng	1258	9.62	1260	9.61	<u>1259</u>	<u>9.61</u>	1084	11.2	<u>1085</u>	<u>11.2</u>	1085	11.2
462.libquantum	604	34.3	606	34.2	<u>604</u>	<u>34.3</u>	613	33.8	599	34.6	<u>599</u>	<u>34.6</u>
464.h264ref	1046	21.2	<u>1045</u>	<u>21.2</u>	1044	21.2	1046	21.2	<u>1045</u>	<u>21.2</u>	1044	21.2
471.omnetpp	865	7.23	<u>864</u>	<u>7.24</u>	863	7.25	800	7.81	<u>798</u>	<u>7.84</u>	796	7.85
473.astar	489	14.4	489	14.4	<u>489</u>	<u>14.4</u>	475	14.8	474	14.8	<u>474</u>	<u>14.8</u>
483.xalancbmk	529	13.0	527	13.1	<u>528</u>	<u>13.1</u>	461	15.0	461	15.0	<u>461</u>	<u>15.0</u>

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.

Compiler Invocation

C benchmarks:

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

C++ benchmarks:

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

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 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

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Peak Optimization Flags (Continued)

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.hmmcr: +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.hmmcr

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

The flags file that was used to format this result can be browsed at

http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.06.html

You can also download the XML flags source by saving the following link:

http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.06.xml

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Tested with SPEC CPU2006 v1.0.

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