



SPEC® CINT2006 Result

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Hewlett-Packard Company

SPECint®2006 = 42.2

ProLiant BL460c G7
(3.06 GHz, Intel Xeon X5675)

SPECint_base2006 = 40.1

CPU2006 license: 3

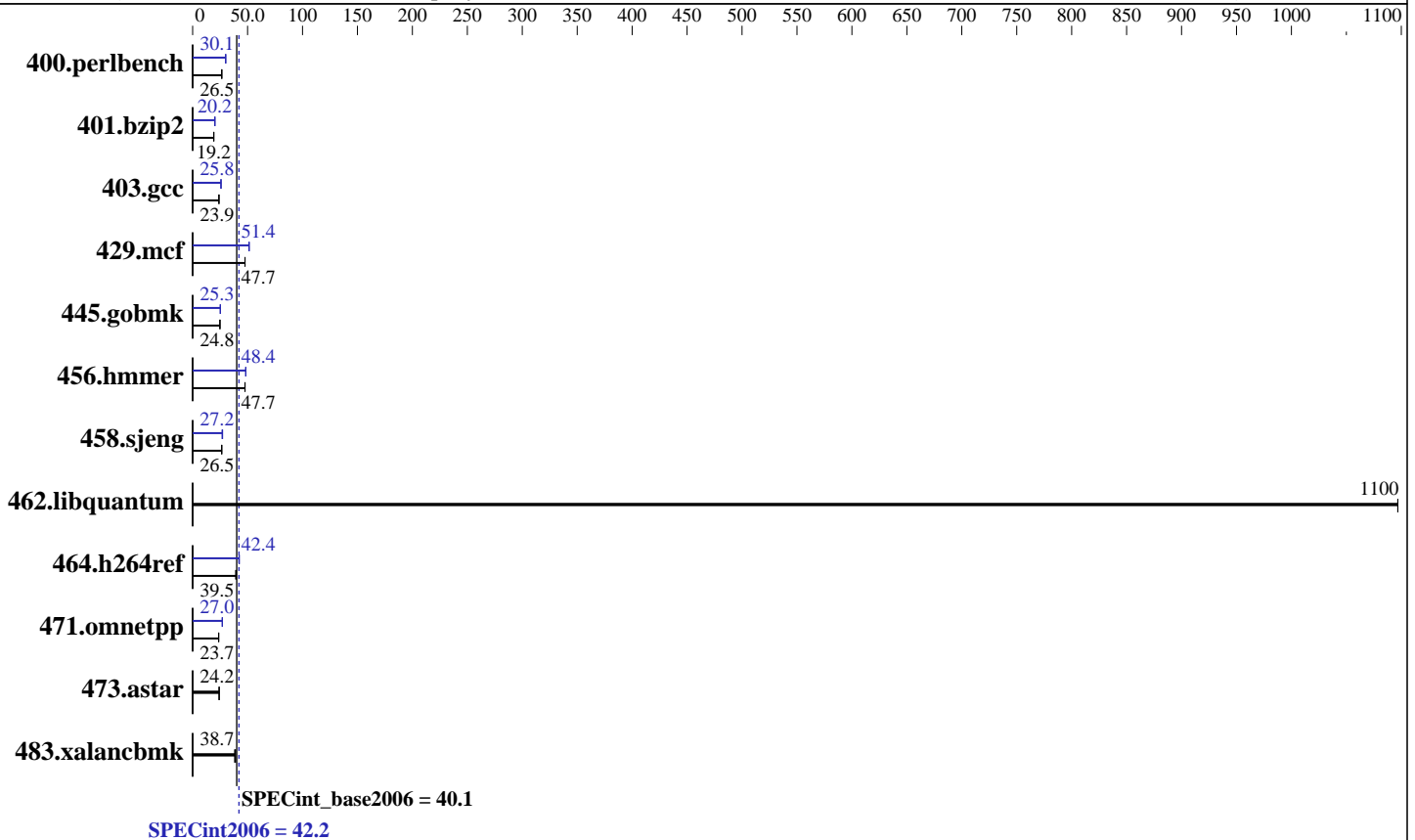
Test date: Jan-2011

Test sponsor: Hewlett-Packard Company

Hardware Availability: Feb-2011

Tested by: Hewlett-Packard Company

Software Availability: Dec-2010



Hardware

CPU Name: Intel Xeon X5675
 CPU Characteristics: Intel Turbo Boost Technology up to 3.46 GHz
 CPU MHz: 3067
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip
 CPU(s) orderable: 1,2 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 12 MB I+D on chip per chip
 Other Cache: None
 Memory: 96 GB (12 x 8 GB 2Rx4 PC3-10600R-9, ECC)
 Disk Subsystem: 1 x 146 GB 10 K SAS
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 11 (x86_64) SP1, Kernel 2.6.32.12-0.7-default
 Compiler: Intel C++ Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.1.116 Build 20101116
 Auto Parallel: Yes
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 32/64-bit
 Peak Pointers: 32/64-bit
 Other Software: Microquill SmartHeap V9.01



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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	368	26.5	369	26.5	<u>369</u>	<u>26.5</u>	325	30.1	325	30.1	<u>325</u>	<u>30.1</u>
401.bzip2	502	19.2	<u>501</u>	<u>19.2</u>	501	19.2	477	20.2	477	20.2	<u>477</u>	<u>20.2</u>
403.gcc	336	23.9	337	23.9	<u>336</u>	<u>23.9</u>	312	25.8	312	25.8	<u>312</u>	<u>25.8</u>
429.mcf	191	47.6	191	47.7	<u>191</u>	<u>47.7</u>	177	51.5	<u>177</u>	<u>51.4</u>	178	51.3
445.gobmk	422	24.9	<u>422</u>	<u>24.8</u>	424	24.8	415	25.3	<u>415</u>	<u>25.3</u>	418	25.1
456.hammer	196	47.7	196	47.6	<u>196</u>	<u>47.7</u>	193	48.4	<u>193</u>	<u>48.4</u>	193	48.3
458.sjeng	457	26.5	<u>457</u>	<u>26.5</u>	457	26.5	<u>445</u>	<u>27.2</u>	444	27.2	452	26.7
462.libquantum	18.9	1100	18.9	1100	<u>18.9</u>	<u>1100</u>	18.9	1100	18.9	1100	<u>18.9</u>	<u>1100</u>
464.h264ref	561	39.5	563	39.3	<u>561</u>	<u>39.5</u>	522	42.4	523	42.3	<u>522</u>	<u>42.4</u>
471.omnetpp	264	23.7	264	23.7	<u>264</u>	<u>23.7</u>	231	27.0	<u>231</u>	<u>27.0</u>	232	26.9
473.astar	290	24.2	<u>290</u>	<u>24.2</u>	292	24.0	290	24.2	<u>290</u>	<u>24.2</u>	292	24.0
483.xalancbmk	<u>178</u>	<u>38.7</u>	181	38.2	176	39.1	<u>178</u>	<u>38.7</u>	181	38.2	176	39.1

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Operating System Notes

```
'nodev /mnt/hugepages hugetlbfs defaults 0 0' added to /etc/fstab
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
echo 900 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

Platform Notes

BIOS configuration:
 HP Power Profile set to Maximum Performance
 Thermal Configuration set to Increased Cooling
 Data Reuse set to Disabled
 Intel Hyperthreading Options set to Disabled

General Notes

OMP_NUM_THREADS set to number of cores
 KMP_AFFINITY set to granularity=fine,scatter
 Binaries were compiled on RHEL5.5 with Binutils binutils-2.17.50.0.6-14.el5

Base Compiler Invocation

C benchmarks:
 icc -m64

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Base Compiler Invocation (Continued)

C++ benchmarks:
icpc -m64

Base Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
471.omnetpp: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/smartheap -lsmartheap64
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m64
400.perlbench: icc -m32

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Peak Compiler Invocation (Continued)

429.mcf: `icc -m32`

445.gobmk: `icc -m32`

464.h264ref: `icc -m32`

C++ benchmarks (except as noted below):

`icpc -m64`

471.omnetpp: `icpc -m32`

Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`

401.bzip2: `-DSPEC_CPU_LP64`

403.gcc: `-DSPEC_CPU_LP64`

456.hammer: `-DSPEC_CPU_LP64`

458.sjeng: `-DSPEC_CPU_LP64`

462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

473.astar: `-DSPEC_CPU_LP64`

483.xalancbmk: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

Peak Optimization Flags

C benchmarks:

400.perlbench: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)`

`-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)`

`-opt-prefetch -ansi-alias`

`-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT`

401.bzip2: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)`

`-O3(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32`

`-opt-prefetch -ansi-alias`

403.gcc: `-xSSE4.2 -ipo -O3 -no-prec-div -inline-calloc`

`-opt-malloc-options=3 -auto-ilp32`

`-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT`

429.mcf: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)`

`-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)`

`-auto-ilp32 -ansi-alias`

`-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT`

445.gobmk: `-xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)`

`-auto-ilp32 -ansi-alias`

`-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT`

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Peak Optimization Flags (Continued)

456.hmmcr: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
-ansi-alias
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

458.sjeng: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll4

462.libquantum: basepeak = yes

464.h264ref: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll2 -ansi-alias
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

C++ benchmarks:

471.omnetpp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-opt-ra-region-strategy=block -ansi-alias -Wl,-z,muldefs
-L/smartheap -lsmartheap
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.html>

<http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20110216.00.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revA.xml>

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