



SPEC® CINT2006 Result

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Hewlett-Packard Company

SPECint®2006 = 46.0

ProLiant ML110 G7 (3.10 GHz Intel Xeon E3-1220)

SPECint_base2006 = 43.9

CPU2006 license: 3

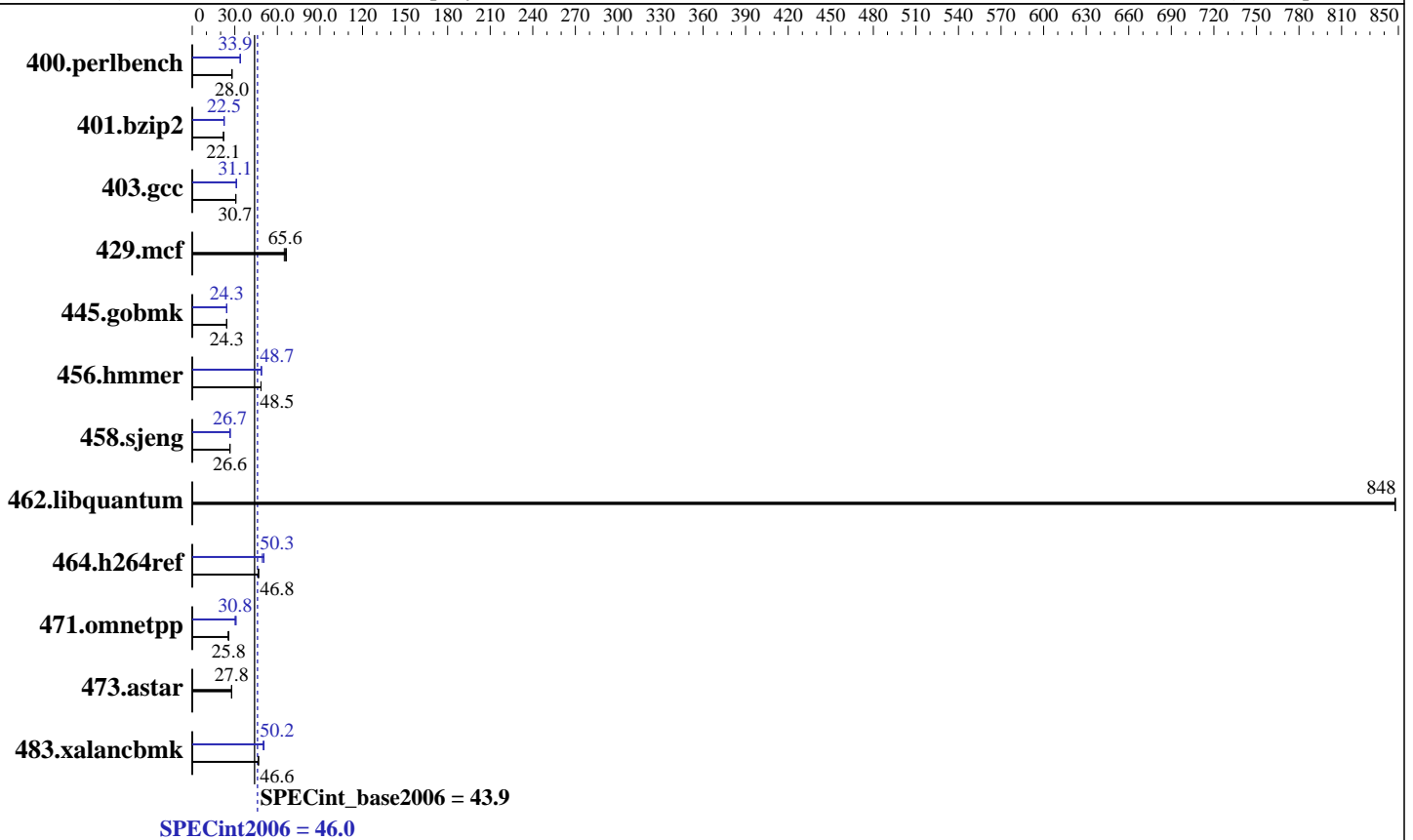
Test date: Nov-2011

Test sponsor: Hewlett-Packard Company

Hardware Availability: Mar-2011

Tested by: Hewlett-Packard Company

Software Availability: Sep-2011



Hardware

CPU Name: Intel Xeon E3-1220
 CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz
 CPU MHz: 3100
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip
 CPU(s) orderable: 1 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 8 MB I+D on chip per chip
 Other Cache: None
 Memory: 8 GB (2 x 4 GB 2Rx8 PC3-10600E-9, ECC)
 Disk Subsystem: 1 x 500 GB 7.2 K SATA (OS), 1 x 750 GB 7.2 K SATA (benchmark files)
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 6.1
 2.6.32-131.0.15.el6.x86_64
 Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux
 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	350	27.9	348	28.0	<u>349</u>	<u>28.0</u>	289	33.8	288	33.9	<u>289</u>	<u>33.9</u>
401.bzip2	437	22.1	<u>437</u>	<u>22.1</u>	438	22.0	430	22.5	429	22.5	<u>430</u>	<u>22.5</u>
403.gcc	263	30.7	<u>262</u>	<u>30.7</u>	262	30.7	258	31.2	<u>259</u>	<u>31.1</u>	259	31.1
429.mcf	141	64.9	<u>139</u>	<u>65.6</u>	137	66.4	141	64.9	<u>139</u>	<u>65.6</u>	137	66.4
445.gobmk	432	24.3	<u>432</u>	<u>24.3</u>	432	24.3	432	24.3	<u>432</u>	<u>24.3</u>	432	24.3
456.hammer	<u>192</u>	<u>48.5</u>	193	48.5	192	48.5	191	48.7	<u>191</u>	<u>48.7</u>	191	48.7
458.sjeng	455	26.6	455	26.6	<u>455</u>	<u>26.6</u>	453	26.7	<u>453</u>	<u>26.7</u>	454	26.7
462.libquantum	24.4	848	<u>24.4</u>	<u>848</u>	24.4	848	24.4	848	<u>24.4</u>	<u>848</u>	24.4	848
464.h264ref	476	46.5	<u>473</u>	<u>46.8</u>	473	46.8	448	49.4	<u>440</u>	<u>50.3</u>	438	50.5
471.omnetpp	242	25.8	<u>242</u>	<u>25.8</u>	248	25.2	207	30.2	<u>203</u>	<u>30.8</u>	203	30.9
473.astar	<u>253</u>	<u>27.8</u>	253	27.7	252	27.8	<u>253</u>	<u>27.8</u>	253	27.7	252	27.8
483.xalancbmk	<u>148</u>	<u>46.6</u>	148	46.7	148	46.6	138	50.1	136	50.6	<u>138</u>	<u>50.2</u>

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

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
```

Platform Notes

```
BIOS Configuration:
HP Power Profile set to Maximum Performance
Thermal Configuration set to Increased Cooling
```

General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/SPEC/libs/32:/SPEC/libs/64"
OMP_NUM_THREADS = "4"
```

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:
-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32
C++ benchmarks:
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -Wl,-z,muldefs
-L/smartheap -lsmartheap64

Base Other Flags

C benchmarks:
403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

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

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Peak Compiler Invocation (Continued)

464.h264ref: icc -m32

C++ benchmarks (except as noted below):

icpc -m32

473.astar: icpc -m64

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
 401.bzip2: -DSPEC_CPU_LP64
 403.gcc: -DSPEC_CPU_LP64
 429.mcf: -DSPEC_CPU_LP64
 456.hmmer: -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_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xAVX(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

401.bzip2: -xAVX(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: -xAVX -ipo -O3 -no-prec-div -inline-calloc
 -opt-malloc-options=3 -auto-ilp32

429.mcf: basepeak = yes

445.gobmk: -xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
 -ansi-alias

456.hmmer: -xAVX -ipo -O3 -no-prec-div -unroll2 -auto-ilp32
 -ansi-alias

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

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Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.h264ref: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-ansi-alias

C++ benchmarks:

471.omnetpp: -xAVX(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

473.astar: basepeak = yes

483.xalancbmk: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
-Wl,-z,muldefs -L/smartheap -lsmartheap

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/HP-Intel-Linux-Settings-flags.20111122.html>

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-linux64.html>

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

<http://www.spec.org/cpu2006/flags/HP-Intel-Linux-Settings-flags.20111122.xml>

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-linux64.xml>

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

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