



SPEC® CINT2006 Result

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Hewlett-Packard Company

SPECint®_rate2006 = 143

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

SPECint_rate_base2006 = 137

CPU2006 license: 3

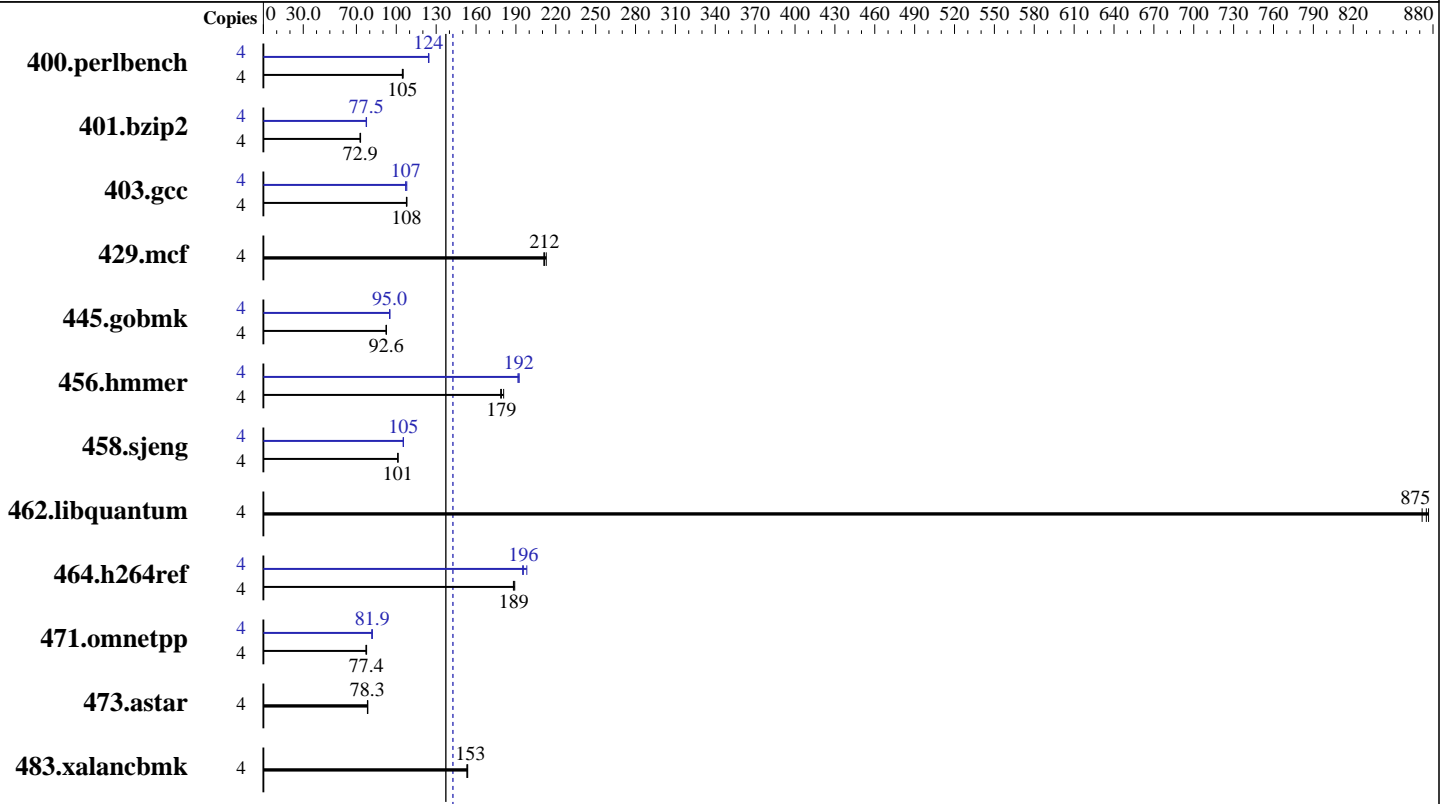
Test date: Nov-2011

Test sponsor: Hewlett-Packard Company

Hardware Availability: Mar-2011

Tested by: Hewlett-Packard Company

Software Availability: Sep-2011



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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: No
 File System: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 32-bit
 Peak Pointers: 32/64-bit
 Other Software: Microquill SmartHeap V9.01



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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	4	372	105	374	105	<u>373</u>	<u>105</u>	4	315	124	314	125	<u>314</u>	<u>124</u>
401.bzip2	4	<u>529</u>	<u>72.9</u>	528	73.1	531	72.8	4	<u>498</u>	<u>77.5</u>	497	77.6	499	77.4
403.gcc	4	299	108	298	108	<u>299</u>	<u>108</u>	4	298	108	301	107	<u>300</u>	<u>107</u>
429.mcf	4	173	211	<u>172</u>	<u>212</u>	171	213	4	173	211	<u>172</u>	<u>212</u>	171	213
445.gobmk	4	455	92.3	453	92.6	<u>453</u>	<u>92.6</u>	4	442	94.9	<u>442</u>	<u>95.0</u>	441	95.2
456.hammer	4	<u>208</u>	<u>179</u>	209	179	206	181	4	<u>194</u>	<u>192</u>	195	192	194	192
458.sjeng	4	<u>478</u>	<u>101</u>	478	101	478	101	4	460	105	<u>460</u>	<u>105</u>	460	105
462.libquantum	4	<u>94.7</u>	<u>875</u>	95.1	872	94.5	877	4	<u>94.7</u>	<u>875</u>	95.1	872	94.5	877
464.h264ref	4	<u>470</u>	<u>189</u>	468	189	471	188	4	447	198	454	195	<u>453</u>	<u>196</u>
471.omnetpp	4	322	77.7	<u>323</u>	<u>77.4</u>	324	77.2	4	305	81.9	306	81.6	<u>305</u>	<u>81.9</u>
473.astar	4	359	78.3	357	78.6	<u>359</u>	<u>78.3</u>	4	359	78.3	357	78.6	<u>359</u>	<u>78.3</u>
483.xalancbmk	4	180	154	180	153	<u>180</u>	<u>153</u>	4	180	154	180	153	<u>180</u>	<u>153</u>

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

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
Filesystem page cache cleared with:
echo 1> /proc/sys/vm/drop_caches
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:
LD_LIBRARY_PATH = "/SPEC/libs/32:/SPEC/libs/64"



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Base Compiler Invocation

C benchmarks:

icc -m32

C++ benchmarks:

icpc -m32

Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:

-xAVX -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
-Wl,-z,muldefs -L/smartheap -lsmartheap

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m32

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:

icpc -m32



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Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
 401.bzip2: -DSPEC_CPU_LP64
 456.hmmer: -DSPEC_CPU_LP64
 458.sjeng: -DSPEC_CPU_LP64
 462.libquantum: -DSPEC_CPU_LINUX
 483.xalanbmk: -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) -auto-ilp32

401.bzip2: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
 -no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch
 -auto-ilp32 -ansi-alias

403.gcc: -xAVX -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
 -ansi-alias -opt-mem-layout-trans=3

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

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
 -auto-ilp32

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) -ansi-alias
 -opt-ra-region-strategy=block -Wl,-z,muldefs
 -L/smartheap -lsmartheap

473.astar: basepeak = yes

483.xalanbmk: basepeak = yes



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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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