



SPEC® CINT2006 Result

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Hewlett-Packard Company

SPECint®2006 = **64.9**

ProLiant XL220a Gen8 v2
(3.70 GHz, Intel Xeon E3-1281 v3)

SPECint_base2006 = **62.3**

CPU2006 license: 3

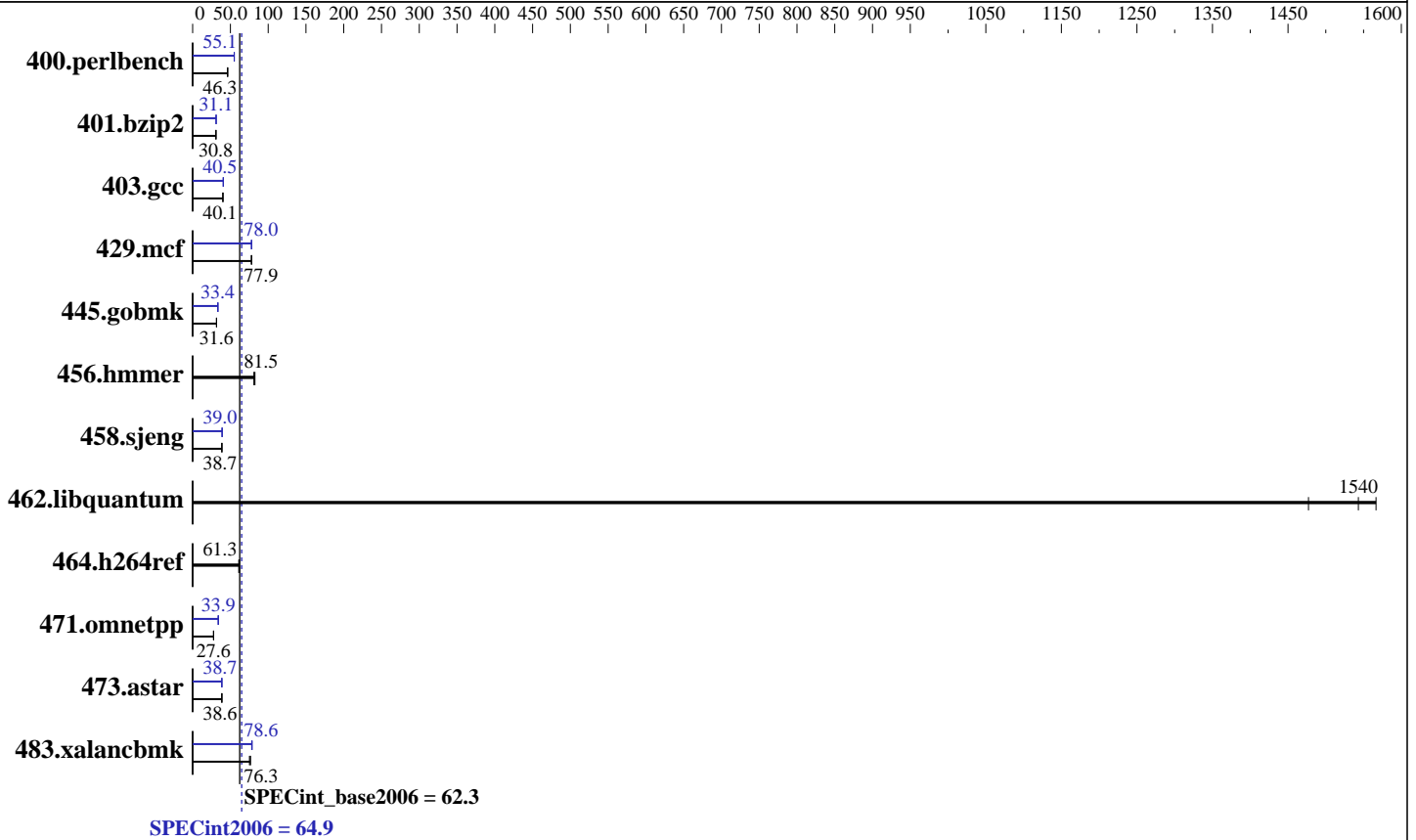
Test date: May-2014

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2014

Tested by: Hewlett-Packard Company

Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E3-1281 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 4.10 GHz
 CPU MHz: 3700
 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: 16 GB (4 x 4 GB 2Rx8 PC3-12800E-11, ECC)
 Disk Subsystem: 1 x 300 GB 15 K SAS, RAID 0
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 11 (x86_64) SP3
 Kernel 3.0.76-0.11-default
 Compiler: C/C++; Version 14.0.0.080 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 V10.0



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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	211	46.3	<u>211</u>	<u>46.3</u>	211	46.3	178	55.0	<u>177</u>	<u>55.1</u>	177	55.2
401.bzip2	<u>313</u>	<u>30.8</u>	312	30.9	313	30.8	311	31.1	310	31.1	<u>310</u>	<u>31.1</u>
403.gcc	201	40.1	201	40.0	<u>201</u>	<u>40.1</u>	198	40.6	199	40.5	<u>199</u>	<u>40.5</u>
429.mcf	117	77.9	<u>117</u>	<u>77.9</u>	117	78.0	117	77.9	<u>117</u>	<u>78.0</u>	117	78.0
445.gobmk	<u>332</u>	<u>31.6</u>	332	31.6	332	31.6	314	33.4	314	33.4	<u>314</u>	<u>33.4</u>
456.hammer	113	82.5	<u>114</u>	<u>81.5</u>	115	81.2	113	82.5	<u>114</u>	<u>81.5</u>	115	81.2
458.sjeng	<u>313</u>	<u>38.7</u>	312	38.7	313	38.6	311	39.0	<u>310</u>	<u>39.0</u>	310	39.1
462.libquantum	13.2	1570	14.0	1480	<u>13.4</u>	<u>1540</u>	13.2	1570	14.0	1480	<u>13.4</u>	<u>1540</u>
464.h264ref	362	61.1	<u>361</u>	<u>61.3</u>	358	61.9	362	61.1	<u>361</u>	<u>61.3</u>	358	61.9
471.omnetpp	226	27.6	224	27.8	<u>226</u>	<u>27.6</u>	185	33.8	183	34.1	<u>184</u>	<u>33.9</u>
473.astar	<u>182</u>	<u>38.6</u>	182	38.6	181	38.8	181	38.7	182	38.5	<u>181</u>	<u>38.7</u>
483.xalancbmk	90.2	76.5	<u>90.4</u>	<u>76.3</u>	91.8	75.2	<u>87.8</u>	<u>78.6</u>	87.7	78.7	88.3	78.2

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

Submit Notes

The config file option 'submit' was used.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"
Transparent Huge Pages enabled with:
echo always > /sys/kernel/mm/transparent_hugepage/enabled

Platform Notes

BIOS Configuration:
Intel Hyperthreading Options set to Disabled
HP Power Profile set to Maximum Performance
Minimum Processor Idle Power Core State set to C6 State
Collaborative Power Control set to Disabled
Thermal Configuration set to Maximum Cooling
Processor Power and Utilization Monitoring set to Disabled
Memory Refresh Rate set to Disabled

Sysinfo program /cpu2006/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on XL220a-Gen8-v2 Thu May 15 18:56:48 2014

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:
<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

Continued on next page



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Platform Notes (Continued)

```

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) CPU E3-1281 v3 @ 3.70GHz
    1 "physical id"s (chips)
    4 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
caution.)
  cpu cores : 4
  siblings  : 4
  physical 0: cores 0 1 2 3
  cache size : 8192 KB

From /proc/meminfo
MemTotal:      16291732 kB
HugePages_Total:    0
Hugepagesize:    2048 kB

/usr/bin/lsb_release -d
  SUSE Linux Enterprise Server 11 (x86_64)

From /etc/*release* /etc/*version*
SuSE-release:
  SUSE Linux Enterprise Server 11 (x86_64)
  VERSION = 11
  PATCHLEVEL = 3

uname -a:
  Linux XL220a-Gen8-v2 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC 2013
  (ccab990) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 15 18:13 last=S

SPEC is set to: /cpu2006
  Filesystem      Type  Size  Used Avail Use% Mounted on
  /dev/sda3       ext3  271G  8.9G  261G   4% /

Additional information from dmidecode:
  BIOS HP P94 04/29/2014
  Memory:
    4x HP 669238-071 4 GB 1600 MHz

(End of data from sysinfo program)

```

General Notes

Environment variables set by runspec before the start of the run:

```

KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/cpu2006/libs/32:/cpu2006/libs/64:/cpu2006/sh"
OMP_NUM_THREADS = "4"

```

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB

Continued on next page



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General Notes (Continued)

memory using RedHat EL 6.4

Base Compiler Invocation

C benchmarks:

icc -m64

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.xalanbmk: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-Wl,-z,muldefs -L/sh -lsmartheap64

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca



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Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

400.perlbench: icc -m32

445.gobmk: 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
464.h264ref: -DSPEC_CPU_LP64
473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -xCORE-AVX2(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: -xCORE-AVX2(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: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc
-opt-malloc-options=3 -auto-ilp32
429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel
-opt-prefetch -auto-p32
445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias

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Peak Optimization Flags (Continued)

456.hmmr: basepeak = yes

458.sjeng: -xCORE-AVX2(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: basepeak = yes

C++ benchmarks:

471.omnetpp: -xCORE-AVX2(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/sh -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-ansi-alias -Wl,-z,muldefs -L/sh -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/Intel-ic14.0-official-linux64.20140128.html>
<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-revD.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>
<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-revD.xml>



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