



SPEC® CINT2006 Result

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Hewlett-Packard Company

SPECint®2006 = 30.2

ProLiant DL380 Gen9
(1.60 GHz, Intel Xeon E5-2603 v3)

SPECint_base2006 = 29.1

CPU2006 license: 3

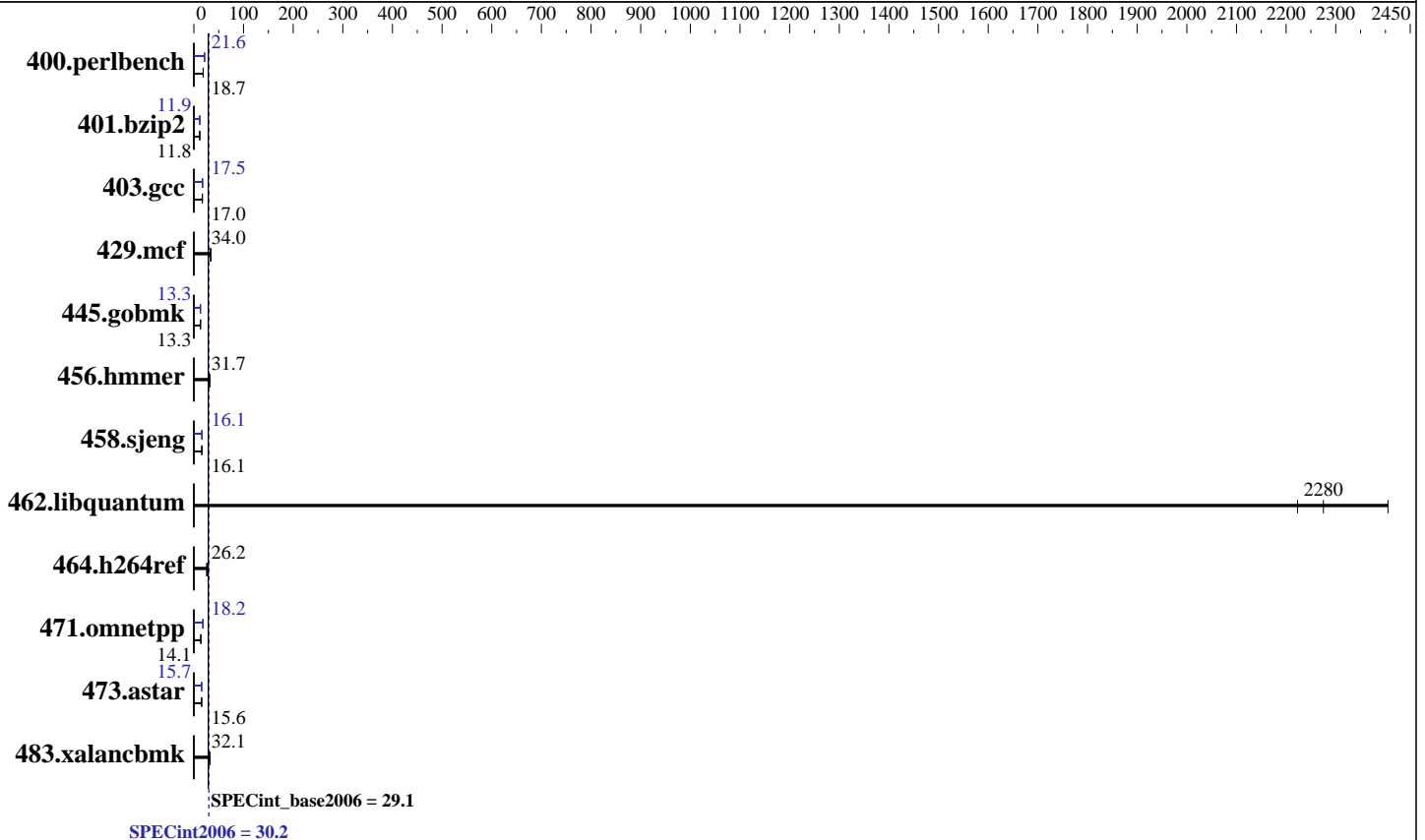
Test date: Oct-2014

Test sponsor: Hewlett-Packard Company

Hardware Availability: Sep-2014

Tested by: Hewlett-Packard Company

Software Availability: Sep-2014



Hardware

CPU Name: Intel Xeon E5-2603 v3
 CPU Characteristics:
 CPU MHz: 1600
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip
 CPU(s) orderable: 1,2 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: 15 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
 Disk Subsystem: 1 x 400 GB SSA SAS, RAID 0
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo)
 Kernel 3.10.0-121.el7.x86_64
 Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux
 Auto Parallel: Yes
 File System: ext4
 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	520	18.8	<u>522</u>	<u>18.7</u>	523	18.7	452	21.6	455	21.5	<u>453</u>	<u>21.6</u>
401.bzip2	821	11.8	<u>820</u>	<u>11.8</u>	819	11.8	812	11.9	<u>813</u>	<u>11.9</u>	813	11.9
403.gcc	<u>473</u>	<u>17.0</u>	474	17.0	469	17.2	<u>461</u>	<u>17.5</u>	462	17.4	459	17.5
429.mcf	<u>268</u>	<u>34.0</u>	274	33.3	268	34.0	<u>268</u>	<u>34.0</u>	274	33.3	268	34.0
445.gobmk	788	13.3	<u>787</u>	<u>13.3</u>	786	13.3	<u>788</u>	<u>13.3</u>	788	13.3	789	13.3
456.hammer	294	31.7	294	31.7	<u>294</u>	<u>31.7</u>	294	31.7	294	31.7	<u>294</u>	<u>31.7</u>
458.sjeng	<u>753</u>	<u>16.1</u>	753	16.1	753	16.1	750	16.1	750	16.1	<u>750</u>	<u>16.1</u>
462.libquantum	<u>9.11</u>	<u>2280</u>	8.61	2410	9.32	2220	<u>9.11</u>	<u>2280</u>	8.61	2410	9.32	2220
464.h264ref	<u>844</u>	<u>26.2</u>	839	26.4	845	26.2	<u>844</u>	<u>26.2</u>	839	26.4	845	26.2
471.omnetpp	447	14.0	<u>444</u>	<u>14.1</u>	436	14.3	<u>344</u>	<u>18.2</u>	348	18.0	339	18.5
473.astar	449	15.6	<u>451</u>	<u>15.6</u>	452	15.5	451	15.6	446	15.7	<u>447</u>	<u>15.7</u>
483.xalancbmk	214	32.2	216	32.0	<u>215</u>	<u>32.1</u>	214	32.2	216	32.0	<u>215</u>	<u>32.1</u>

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:
HP Power Profile set to Custom
HP Power Regulator to HP Static High Performance Mode
Minimum Processor Idle Power Core State set to C6 State
Minimum Processor Idle Power Package State set to No Package State
QPI Snoop Configuration set to Early Snoop
Thermal Configuration set to Maximum Cooling
Collaborative Power Control set to Disabled
Processor Power and Utilization Monitoring set to Disabled
Memory Double Refresh Rate set to 1x Refresh

Sysinfo program /cpu2006/config/sysinfo.rev6914
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1
running on DL380-Gen9 Thu Oct 23 20:45:23 2014

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:
Continued on next page



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Platform Notes (Continued)

<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2603 v3 @ 1.60GHz
 2 "physical id"s (chips)
 12 "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 : 6
  siblings  : 6
  physical 0: cores 0 1 2 3 4 5
  physical 1: cores 0 1 2 3 4 5
cache size : 15360 KB

```

```

From /proc/meminfo
MemTotal:      263847236 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

```

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.0 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.0"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

```

```

uname -a:
Linux DL380-Gen9 3.10.0-121.el7.x86_64 #1 SMP Tue Apr 8 10:48:19 EDT 2014
x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Oct 23 20:39

```

SPEC is set to: /cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda4       ext4  362G  203G  141G   60% /

```

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS HP P89 07/11/2014
Memory:

Continued on next page



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Platform Notes (Continued)

2x HP 752369-081 16 GB 2 rank 2133 MHz, configured at 1600 MHz
14x HP NOT AVAILABLE 16 GB 2 rank 2133 MHz, configured at 1600 MHz
8x UNKNOWN NOT AVAILABLE

(End of data from sysinfo program)

Regarding the sysinfo display about the memory installed, the correct amount of memory is 256 GB and the dmidecode description should have two lines reading as:

2x HP 752369-081 16 GB 2 rank 2133 MHz, configured at 1600 MHz
14x HP NOT AVAILABLE 16 GB 2 rank 2133 MHz, configured at 1600 MHz

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 = "12"

Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB memory using RedHat EL 7.0

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



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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`

Peak Compiler Invocation

C benchmarks (except as noted below):

`icc -m64`

`400.perlbench: icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32`

`445.gobmk: icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32`

C++ benchmarks (except as noted below):

`icpc -m64`

`471.omnetpp: icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32`

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_LP64 -DSPEC_CPU_LINUX`



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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: basepeak = yes

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias

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: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca



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

<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-HSW-revE.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-HSW-revE.xml>

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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