SPEC® CINT2006 Result
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Hewlett-Packard Company

ProLiant DL360 Gen9
(2.60 GHz, Intel Xeon E5-2697 v3)

$SPECint®2006 =$ 65.5

$SPECint\_base2006 =$ 62.4

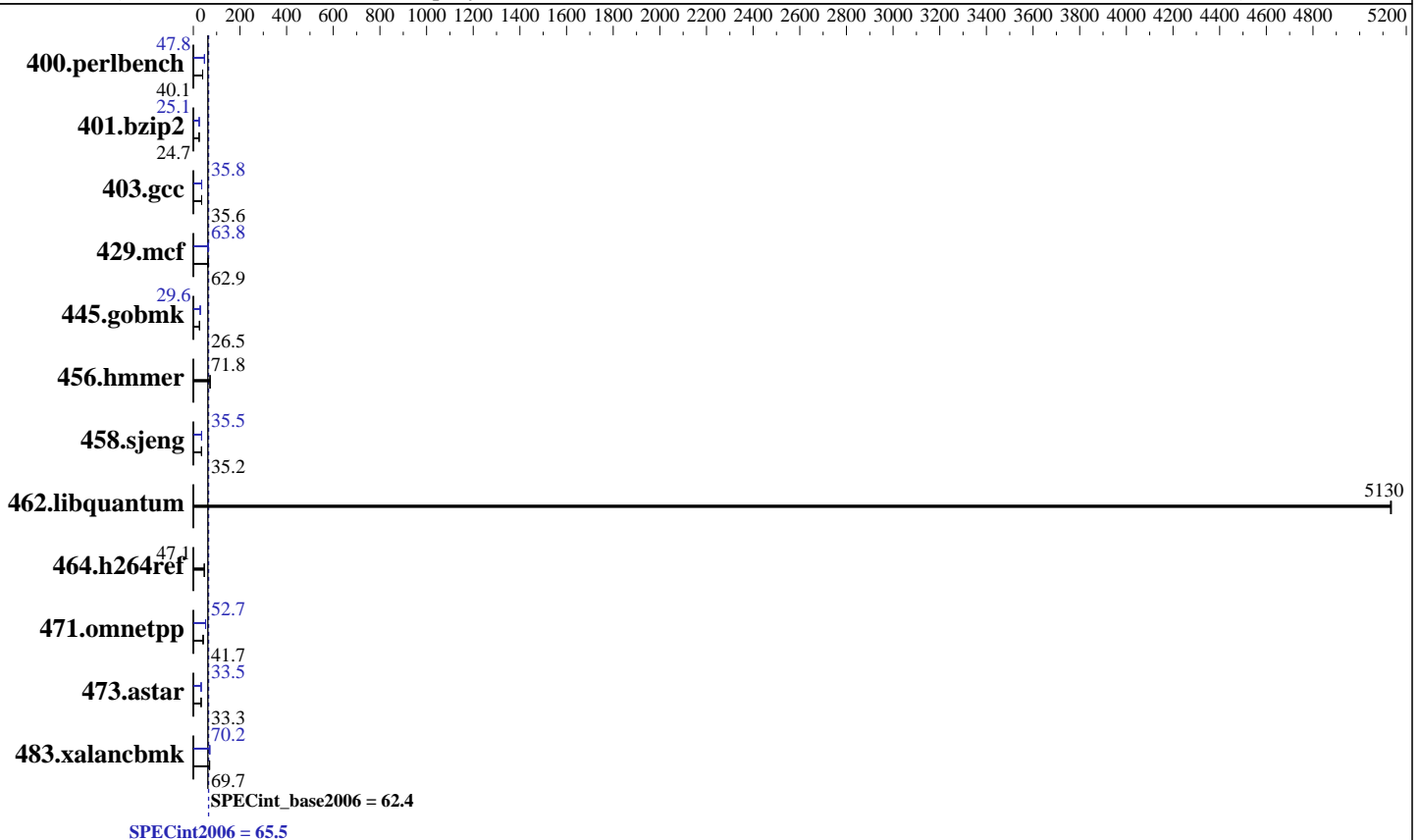|	
CPU2006 license: 3	**Test date:** Aug-2014
Test sponsor: Hewlett-Packard Company	**Hardware Availability:** Sep-2014
Tested by: Hewlett-Packard Company	**Software Availability:** Jun-2014

0 200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400 3600 3800 4000 4200 4400 4600 4800   5200

- **400.perlbench** 47.8 / 40.1
- **401.bzip2** 25.1 / 24.7
- **403.gcc** 35.8 / 35.6
- **429.mcf** 63.8 / 62.9
- **445.gobmk** 29.6 / 26.5
- **456.hmmer** 71.8
- **458.sjeng** 35.5 / 35.2
- **462.libquantum** 5130
- **464.h264ref** 47.1
- **471.omnetpp** 52.7 / 41.7
- **473.astar** 33.5 / 33.3
- **483.xalancbmk** 70.2 / 69.7

SPECint_base2006 = 62.4

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Hardware

CPU Name:	Intel Xeon E5-2697 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	14 cores, 1 chip, 14 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:	35 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (8 x 16 GB 2Rx4 PC4-2133P-R)
Disk Subsystem:	1 x 400 GB SAS SSD, RAID 0
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 7.0 (Maipo)
	Kernel 3.10.0-123.el7.x86_64
Compiler:	C/C++: Version 14.0.0.080 of Intel C++ Studio XE for Linux
Auto Parallel:	Yes
File System:	xfs
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	244	40.1	**244**	**40.1**	244	40.0	205	47.7	**205**	**47.8**	204	47.9
401.bzip2	**390**	**24.7**	387	24.9	390	24.7	**384**	**25.1**	385	25.1	384	25.1
403.gcc	**226**	**35.6**	226	35.6	226	35.7	225	35.8	224	35.9	**225**	**35.8**
429.mcf	144	63.2	**145**	**62.9**	145	62.7	143	63.9	144	63.1	**143**	**63.8**
445.gobmk	396	26.5	**396**	**26.5**	397	26.4	355	29.6	355	29.6	**355**	**29.6**
456.hmmer	130	71.9	130	71.6	**130**	**71.8**	130	71.9	130	71.6	**130**	**71.8**
458.sjeng	344	35.2	345	35.1	**344**	**35.2**	342	35.4	**341**	**35.5**	341	35.5
462.libquantum	4.04	5130	4.03	5140	**4.04**	**5130**	4.04	5130	4.03	5140	**4.04**	**5130**
464.h264ref	471	47.0	469	47.2	**470**	**47.1**	471	47.0	469	47.2	**470**	**47.1**
471.omnetpp	**150**	**41.7**	152	41.2	145	43.1	**119**	**52.7**	118	53.0	119	52.4
473.astar	208	33.7	**211**	**33.3**	211	33.3	209	33.5	**210**	**33.5**	210	33.5
483.xalancbmk	98.4	70.1	99.8	69.2	**99.0**	**69.7**	97.2	71.0	98.4	70.1	**98.2**	**70.2**

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 set to Disabled
 HP Power Profile set to Maximum Performance
 Thermal Configuration set to Maximum Cooling
 Collaborative Power Control set to Disabled
 QPI Snoop Configuration set to Early Snoop
 Processor Power and Utlization Monitoring set to Disabled
 Memory Patrol Scrubbing set to Disabled
 Memory Refresh Rate set to 1x Refresh

 Sysinfo program /home/cpu2006/config/sysinfo.rev6818
 $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
 running on localhost.localdomain Fri Aug 22 01:17:59 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

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Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2697 v3 @ 2.60GHz
      1 "physical id"s (chips)
      14 "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 : 14
      siblings  : 14
      physical 0: cores 0 2 4 5 6 8 9 10 11 12 13 14
   cache size : 35840 KB

From /proc/meminfo
   MemTotal:       131735012 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 localhost.localdomain 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57
   EDT 2014 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Aug 22 00:35

SPEC is set to: /home/cpu2006
   Filesystem              Type  Size  Used Avail Use% Mounted on
   /dev/mapper/rhel-home xfs    318G  4.1G  314G   2% /home

Additional information from dmidecode:
  BIOS HP P89 07/11/2014
  Memory:
    8x HP NOT AVAILABLE 16 GB 2133 MHz 2 rank
    16x UNKNOWN NOT AVAILABLE

 (End of data from sysinfo program)
Regarding the sysinfo display about the memory installed, the correct amount of
memory is 128 GB and the dmidecode description should have one line reading as:
  8x HP NOT AVAILABLE 16 GB 2133 MHz 2 rank
```

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General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"
OMP_NUM_THREADS = "14"

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

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Base Other Flags (Continued)

403.gcc: -Dalloca=_alloca

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

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Peak Optimization Flags (Continued)

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`

456.hmmer: 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-HSW-revA.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-HSW-revA.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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