SPEC® CINT2006 Result
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Hewlett-Packard Company

SPECint®2006 = 66.2

ProLiant DL380 Gen9
(2.30 GHz, Intel Xeon E5-2699 v3)
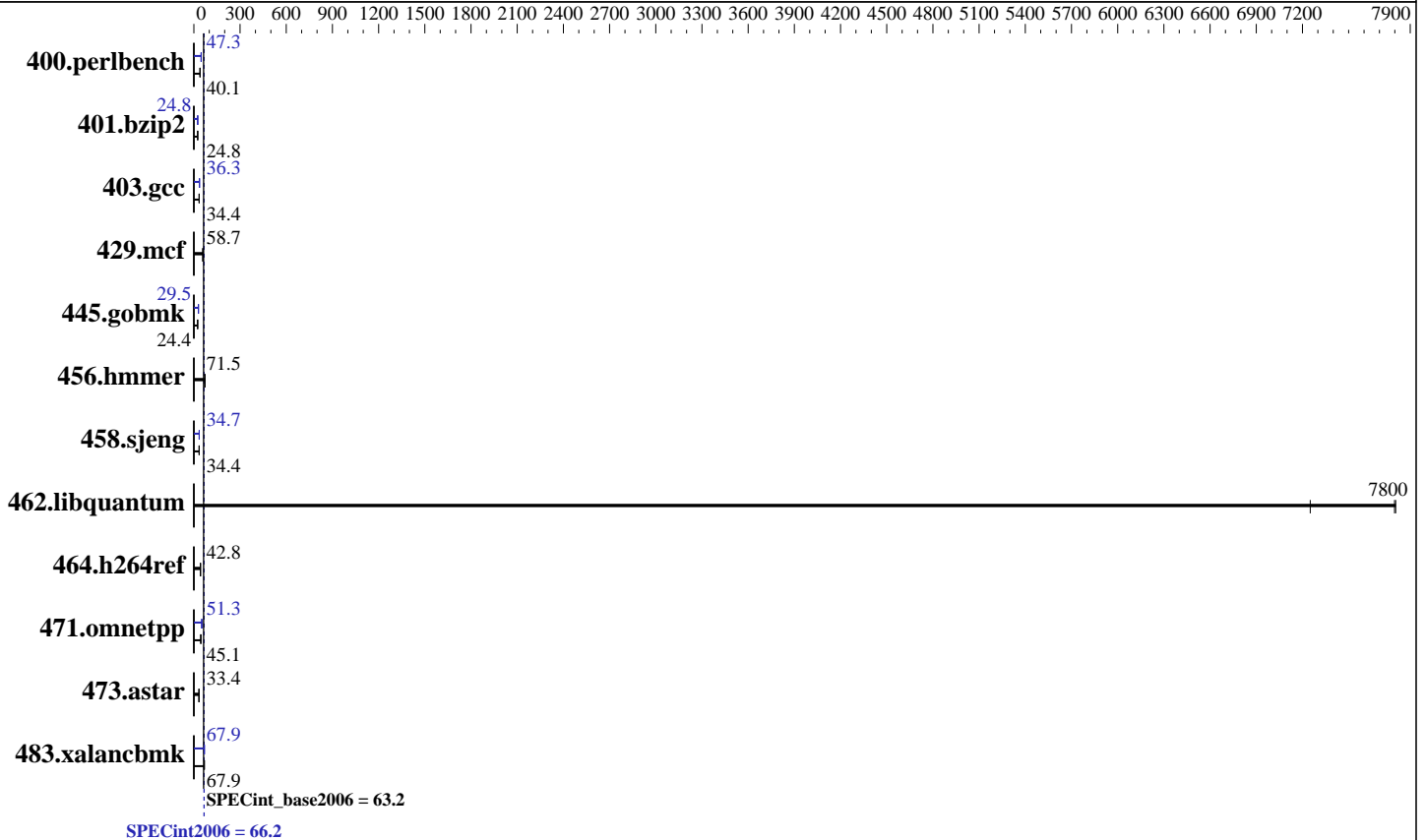
SPECint_base2006 = 63.2

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

0　300　600　900　1200　1500　1800　2100　2400　2700　3000　3300　3600　3900　4200　4500　4800　5100　5400　5700　6000　6300　6600　6900　7200　　7900

```
400.perlbench     47.3
                  40.1
401.bzip2         24.8
                  24.8
403.gcc           36.3
                  34.4
429.mcf           58.7
445.gobmk         29.5
                  24.4
456.hmmer         71.5
458.sjeng         34.7
                  34.4
462.libquantum                                                                                                7800
464.h264ref       42.8
471.omnetpp       51.3
                  45.1
473.astar         33.4
483.xalancbmk     67.9
                  67.9
```

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Hardware

CPU Name:	Intel Xeon E5-2699 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz:	2300
FPU:	Integrated
CPU(s) enabled:	36 cores, 2 chips, 18 cores/chip
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	45 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (16 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:	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	243	40.2	**244**	**40.1**	244	40.0	**206**	**47.3**	206	47.4	207	47.3
401.bzip2	390	24.8	**390**	**24.8**	389	24.8	388	24.9	**389**	**24.8**	389	24.8
403.gcc	**234**	**34.4**	235	34.3	234	34.5	222	36.2	**222**	**36.3**	221	36.4
429.mcf	157	58.0	**155**	**58.7**	154	59.1	157	58.0	**155**	**58.7**	154	59.1
445.gobmk	**430**	**24.4**	431	24.3	430	24.4	355	29.5	356	29.5	**355**	**29.5**
456.hmmer	131	71.0	130	71.8	**130**	**71.5**	131	71.0	130	71.8	**130**	**71.5**
458.sjeng	**352**	**34.4**	352	34.4	352	34.4	349	34.7	348	34.8	**349**	**34.7**
462.libquantum	2.86	7250	**2.66**	**7800**	2.65	7810	2.86	7250	**2.66**	**7800**	2.65	7810
464.h264ref	516	42.9	518	42.7	**517**	**42.8**	516	42.9	518	42.7	**517**	**42.8**
471.omnetpp	**139**	**45.1**	138	45.4	139	44.8	121	51.5	122	51.2	**122**	**51.3**
473.astar	209	33.6	213	33.0	**210**	**33.4**	209	33.6	213	33.0	**210**	**33.4**
483.xalancbmk	102	68.0	102	67.7	**102**	**67.9**	100	68.8	**102**	**67.9**	102	67.4

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/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
 echo 1 >   /proc/sys/vm/drop_caches

Platform Notes

BIOS Configuration:
 Intel Hyperthreading Options set to Disabled
 HP Power Profile set to Custom
 HP Power Regulator set to HP Static High Performance Mode
 Minimum Processor Idle Power Package C-State set to No Package State
 Energy/Performance Bias set to Maximum Performance
 QPI Snoop Configuration set to Early Snoop
 Thermal Configuration set to Maximum Cooling
 Processor Power and Utlization Monitoring set to Disabled
 Memory Refresh Rate set to 1x Refresh

 Sysinfo program /cpu2006/config/sysinfo.rev6818
 $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
 running on localhost.localdomain Mon Aug 11 08:44:10 2014

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Platform Notes (Continued)

```
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

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
      2 "physical id"s (chips)
      36 "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 : 18
      siblings  : 18
      physical 0: cores 0 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 1: cores 0 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
   cache size : 46080 KB

From /proc/meminfo
   MemTotal:       263844520 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 11 08:42

SPEC is set to: /cpu2006
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda3       ext4  362G  9.2G  335G   3% /

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

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Platform Notes (Continued)

```
   (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 one line reading as:
   16x HP NOT AVAILABLE 16 GB 2133 MHz 2 rank
```

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 = "36"

   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
```

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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`

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`

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Peak Optimization Flags (Continued)

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.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: basepeak = yes

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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