Hewlett-Packard Company
ProLiant DL120 Gen9
(2.60 GHz, Intel Xeon E5-2660 v3)

SPEConf_rate2006 = 468
SPEConf_rate_base2006 = 450

Hewlett-Packard Company

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Nov-2014
Hardware Availability: Sep-2014

SPECint_rate2006 = 468
SPECint_rate_base2006 = 450

CPU Name: Intel Xeon E5-2660 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz: 2600
FPU: Integrated
CPU(s) enabled: 10 cores, 1 chip, 10 cores/chip, 2 threads/core
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: 25 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 1 TB SATA, 7200 RPM, RAID 0
Other Hardware: None

Operating System: Red Hat Enterprise Linux Server release 7.0 (Maipo)
Compiler: C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux
Auto Parallel: No
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 32-bit
Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V10.0
Hewlett-Packard Company

ProLiant DL120 Gen9
(2.60 GHz, Intel Xeon E5-2660 v3)

SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Hewlett-Packard Company

SPECint_rate2006 = 468
SPECint_rate_base2006 = 450

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Nov-2014
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>20</td>
<td>598</td>
<td>327</td>
<td>598</td>
<td>327</td>
<td>594</td>
<td>329</td>
<td>20</td>
<td>472</td>
<td>414</td>
<td>475</td>
<td>412</td>
<td>474</td>
<td>413</td>
<td></td>
<td></td>
</tr>
<tr>
<td>401.bzip2</td>
<td>20</td>
<td>880</td>
<td>219</td>
<td>878</td>
<td>220</td>
<td>881</td>
<td>219</td>
<td>20</td>
<td>842</td>
<td>229</td>
<td>842</td>
<td>229</td>
<td>841</td>
<td>229</td>
<td></td>
<td></td>
</tr>
<tr>
<td>403.gcc</td>
<td>20</td>
<td>460</td>
<td>350</td>
<td>461</td>
<td>350</td>
<td>456</td>
<td>353</td>
<td>20</td>
<td>456</td>
<td>353</td>
<td>452</td>
<td>356</td>
<td>451</td>
<td>357</td>
<td></td>
<td></td>
</tr>
<tr>
<td>429.mcf</td>
<td>20</td>
<td>303</td>
<td>601</td>
<td>300</td>
<td>609</td>
<td>302</td>
<td>605</td>
<td>20</td>
<td>303</td>
<td>601</td>
<td>300</td>
<td>609</td>
<td>302</td>
<td>605</td>
<td></td>
<td></td>
</tr>
<tr>
<td>445.gobmk</td>
<td>20</td>
<td>693</td>
<td>303</td>
<td>691</td>
<td>304</td>
<td>693</td>
<td>303</td>
<td>20</td>
<td>686</td>
<td>306</td>
<td>687</td>
<td>305</td>
<td>687</td>
<td>306</td>
<td></td>
<td></td>
</tr>
<tr>
<td>456.hmmer</td>
<td>20</td>
<td>288</td>
<td>649</td>
<td>287</td>
<td>650</td>
<td>292</td>
<td>638</td>
<td>20</td>
<td>265</td>
<td>705</td>
<td>267</td>
<td>700</td>
<td>265</td>
<td>705</td>
<td></td>
<td></td>
</tr>
<tr>
<td>458.sjeng</td>
<td>20</td>
<td>744</td>
<td>325</td>
<td>743</td>
<td>326</td>
<td>744</td>
<td>325</td>
<td>20</td>
<td>710</td>
<td>341</td>
<td>723</td>
<td>335</td>
<td>724</td>
<td>334</td>
<td></td>
<td></td>
</tr>
<tr>
<td>462.libquantum</td>
<td>20</td>
<td>94.9</td>
<td>4370</td>
<td>94.7</td>
<td>4380</td>
<td>94.6</td>
<td>4380</td>
<td>20</td>
<td>94.9</td>
<td>4370</td>
<td>94.7</td>
<td>4380</td>
<td>94.6</td>
<td>4380</td>
<td></td>
<td></td>
</tr>
<tr>
<td>464.h264ref</td>
<td>20</td>
<td>863</td>
<td>513</td>
<td>829</td>
<td>534</td>
<td>821</td>
<td>539</td>
<td>20</td>
<td>808</td>
<td>548</td>
<td>814</td>
<td>544</td>
<td>847</td>
<td>523</td>
<td></td>
<td></td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>20</td>
<td>506</td>
<td>247</td>
<td>504</td>
<td>248</td>
<td>510</td>
<td>245</td>
<td>20</td>
<td>485</td>
<td>258</td>
<td>487</td>
<td>257</td>
<td>484</td>
<td>258</td>
<td></td>
<td></td>
</tr>
<tr>
<td>473.astar</td>
<td>20</td>
<td>556</td>
<td>253</td>
<td>556</td>
<td>253</td>
<td>559</td>
<td>251</td>
<td>20</td>
<td>556</td>
<td>253</td>
<td>556</td>
<td>253</td>
<td>559</td>
<td>251</td>
<td></td>
<td></td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>20</td>
<td>283</td>
<td>487</td>
<td>283</td>
<td>487</td>
<td>283</td>
<td>487</td>
<td>20</td>
<td>283</td>
<td>487</td>
<td>283</td>
<td>488</td>
<td>283</td>
<td>487</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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
runcpec command cache cleared with:
   echo 1 >       /proc/sys/vm/drop_caches
runcpec command invoked through numactl i.e.:
   numactl --interleave=all runspec <etc>

Platform Notes

BIOS Configuration:
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 Cluster on Die
Thermal Configuration set to Maximum Cooling
Processor Power and Utilization Monitoring set to Disabled
Memory Refresh Rate set to 1x Refresh

Sysinfo program /cpu2006/config/sysinfo.rev6914
Continued on next page
Hewlett-Packard Company
ProLiant DL120 Gen9
(2.60 GHz, Intel Xeon E5-2660 v3)

SPECint_rate2006 = 468
SPECint_rate_base2006 = 450

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Platform Notes (Continued)

$Rev: 6914 $ $Date:: 2014-06-25#$ e3fbb8667bSa285932ceab81e28219el
running on localhost.localdomain Fri Nov 21 14:32:26 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

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2660 v3 @ 2.60GHz
1 "physical id"s (chips)
20 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
cautions.)
cpu cores : 5
siblings : 10
physical 0: cores 0 1 2 3 4 8 9 10 11 12
cache size : 12800 KB

From /proc/meminfo
MemTotal: 131733848 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
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 Nov 21 14:31

SPEC is set to: /cpu2006
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda4 xfs 927G 14G 914G 2% /

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
Continued on next page
SPEC CINT2006 Result

Hewlett-Packard Company
ProLiant DL120 Gen9
(2.60 GHz, Intel Xeon E5-2660 v3)

SPECint_rate2006 = 468
SPECint_rate_base2006 = 450

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Nov-2014
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Platform Notes (Continued)

hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS HP P86 08/27/2014
Memory:
8x HP 752369-081 16 GB 2 rank 2133 MHz

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/cpu2006/libs/32:/cpu2006/libs/64:/cpu2006/sh"

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

Base Compiler Invocation

C benchmarks:
  icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

C++ benchmarks:
  icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

Base Portability Flags

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

Base Optimization Flags

C benchmarks:
  -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
  -opt-mem-layout-trans=3

C++ benchmarks:
  -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
  -opt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh -lsmartheap
Hewlett-Packard Company

ProLiant DL120 Gen9
(2.60 GHz, Intel Xeon E5-2660 v3)

SPECint_rate2006 = 468
SPECint_rate_base2006 = 450

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Nov-2014
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m32 -L/opt/intel/compiler_xe_2015/lib/ia32
  400.perlbench: icc -m64
  401.bzip2: icc -m64
  456.hmmer: icc -m64
  458.sjeng: icc -m64

C++ benchmarks:
icpc -m32 -L/opt/intel/compiler_xe_2015/lib/ia32

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.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)
                  -auto-ilp32
  401.bzip2: -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 -auto-ilp32 -ansi-alias
  403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div

Continued on next page
Hewlett-Packard Company  
ProLiant DL120 Gen9  
(2.60 GHz, Intel Xeon E5-2660 v3)  

SPECint_rate2006 = 468  
SPECint_rate_base2006 = 450

CPU2006 license: 3  
Test sponsor: Hewlett-Packard Company  
Tested by: Hewlett-Packard Company

Test date: Nov-2014  
Hardware Availability: Sep-2014  
Software Availability: Sep-2014

Peak Optimization Flags (Continued)

429.mcf: basepeak = yes

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll12 -auto-ilp32

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 -auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -xCORE-AVX2(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: -xCORE-AVX2(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/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

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-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
**SPEC CINT2006 Result**

**Hewlett-Packard Company**

ProLiant DL120 Gen9  
(2.60 GHz, Intel Xeon E5-2660 v3)  

| SPECint_rate2006 = 468 |  
| SPECint_rate_base2006 = 450 |

<table>
<thead>
<tr>
<th>CPU2006 license: 3</th>
<th>Test date: Nov-2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor: Hewlett-Packard Company</td>
<td>Hardware Availability: Sep-2014</td>
</tr>
<tr>
<td>Tested by: Hewlett-Packard Company</td>
<td>Software Availability: Sep-2014</td>
</tr>
</tbody>
</table>

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU2006 v1.2.  
Report generated on Tue Dec 16 13:12:06 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 16 December 2014.