## SPEC® CINT2006 Result

### Hewlett-Packard Company

ProLiant DL560 Gen9  
(2.60 GHz, Intel Xeon E5-4627 v3)

<table>
<thead>
<tr>
<th>Software</th>
<th>CPU2006 license: 3</th>
<th>Test date: May-2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor:</td>
<td>Hewlett-Packard Company</td>
<td>Hardware Availability: Jun-2015</td>
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<tr>
<td>Tested by:</td>
<td>Hewlett-Packard Company</td>
<td>Software Availability: Oct-2014</td>
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### SPECint_rate2006 = 1580  
SPECint_rate_base2006 = 1540

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>CPU(s) enabled</th>
<th>Memory</th>
<th>Other Hardware</th>
<th>Other Cache</th>
<th>Primary Cache</th>
<th>Secondary Cache</th>
<th>L3 Cache</th>
<th>Operating System</th>
<th>Compiler</th>
<th>File System</th>
<th>System State</th>
<th>Base Pointers</th>
<th>Peak Pointers</th>
<th>Other Software</th>
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</thead>
<tbody>
<tr>
<td>perlbench</td>
<td>40 cores, 4 chips, 10 cores/chip</td>
<td>512 GB (32 x 16 GB 2Rx4 PC4-2133P-R)</td>
<td>None</td>
<td>None</td>
<td>32 KB I + 32 KB D on chip per core</td>
<td>256 KB I+D on chip per core</td>
<td>25 MB I+D on chip per chip</td>
<td>Intel Xeon E5-4627 v3</td>
<td>SUSE Linux Enterprise Server 12 (x86_64)</td>
<td>C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux</td>
<td>Run level 5 (multi-user)</td>
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</tbody>
</table>

### CPU Characteristics:
- Intel Xeon E5-4627 v3

### CPU MHz:
- 2600 MHz

### FPU:
- Integrated

### CPU(s) enabled:
- 40 cores, 4 chips, 10 cores/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:
- 25 MB I+D on chip per chip

### Memory:
- 512 GB (32 x 16 GB 2Rx4 PC4-2133P-R)

### Disk Subsystem:
- 2 x 400 GB SAS SSD, RAID 1
**SPEC CINT2006 Result**

**Hewlett-Packard Company**

ProLiant DL560 Gen9 (2.60 GHz, Intel Xeon E5-4627 v3)

**SPECint_rate2006 = 1580**

**SPECint_rate_base2006 = 1540**

**CPU2006 license:** 3  
**Test sponsor:** Hewlett-Packard Company  
**Tested by:** Hewlett-Packard Company  
**Test date:** May-2015  
**Hardware Availability:** Jun-2015  
**Software Availability:** Oct-2014

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### Results Table

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<td>1810</td>
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</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"  
Filesystem page cache cleared with:  
```bash  
echo 1 > /proc/sys/vm/drop_caches  
```

Transparent Huge Pages enabled with:  
```bash  
echo always > /sys/kernel/mm/transparent_hugepage/enabled  
```

runspec command invoked through numactl i.e.:  
```bash  
numactl --interleave=all runspec <etc>  
```

### Platform Notes

**BIOS Configuration**  
Power Profile set to Custom  
Power Regulator set to Static High Performance Mode  
Minimum Processor Idle Power Core C-State set to C6 State  
Minimum Processor Idle Power Package C-State set to No Package State  
Energy/Performance Bias set to Maximum Performance  
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 1x Refresh

Continued on next page
**SPEC CINT2006 Result**

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**ProLiant DL560 Gen9**  
(2.60 GHz, Intel Xeon E5-4627 v3)

**SPECint_rate2006 = 1580**  
**SPECint_rate_base2006 = 1540**

**CPU2006 license:** 3  
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**Platform Notes (Continued)**

Sysinfo program /home/cpu2006/config/sysinfo.rev6914  
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1  
running on dl560gen9jks Tue May 26 13:26:36 2015

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 E5-4627 v3 @ 2.60GHz  
4 "physical id"s (chips)  
40 "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 : 10  
siblings : 10  
physical 0: cores 0 2 3 4 8 9 10 11 12  
physical 1: cores 0 2 3 4 8 9 10 11 12  
physical 2: cores 0 2 3 4 8 9 10 11 12  
physical 3: cores 0 2 3 4 8 9 10 11 12  
cache size : 25600 KB

From /proc/meminfo  
MemTotal: 529312800 kB  
HugePages_Total: 0  
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d  
SUSE Linux Enterprise Server 12

From /etc/*release*/etc/*version*  
SuSE-release:  
SUSE Linux Enterprise Server 12 (x86_64)  
VERSION = 12  
PATCHLEVEL = 0  
# This file is deprecated and will be removed in a future service pack or  
release.  
# Please check /etc/os-release for details about this release.

os-release:  
NAME="SLES"  
VERSION="12"  
VERSION_ID="12"  
PRETTY_NAME="SUSE Linux Enterprise Server 12"  
ID="sles"  
ANSI_COLOR="0;32"  
CPE_NAME="cpe:/o:suse:sles:12"

uname -a:  
Linux dl560gen9jks 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014  
(9879bd4) x86_64 x86_64 x86_64 GNU/Linux

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Platform Notes (Continued)

run-level 5 May 26 13:25
SPEC is set to: /home/cpu2006
  Filesystem  Type  Size  Used  Avail  Use%  Mounted on
  /dev/sda4  xfs  331G  6.1G  325G  2%  /home
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 P85 03/05/2015
Memory:
  24x HP 752369-081 16 GB 2 rank 2133 MHz
  16x UNKNOWN NOT AVAILABLE
  8x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2133 MHz

(End of data from sysinfo program)
Regarding the sysinfo display about the memory installed, the correct amount of memory is 512 GB and the dmidecode description should have two lines reading as:
  24x HP 752369-081 16 GB 2 rank 2133 MHz
  8x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2133 MHz

General Notes

Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/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
Hewlett-Packard Company
ProLiant DL560 Gen9
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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 -W1,-z,muldefs -L/sh -lsmartheap

Base Other Flags

C benchmarks:
403.gcc: -Dallocal=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m32 -L/opt/intel/composer_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/composer_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
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Peak Optimization Flags

C benchmarks:

400.perlbm: -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

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 -unroll2 -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
Hewlett-Packard Company
ProLiant DL560 Gen9
(2.60 GHz, Intel Xeon E5-4627 v3)

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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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