



# SPEC® CINT2006 Result

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**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Synergy 480 Gen9  
(1.80 GHz, Intel Xeon E5-2630L v4)

**SPECint®2006 = 59.8**

**SPECint\_base2006 = 56.6**

CPU2006 license: 3

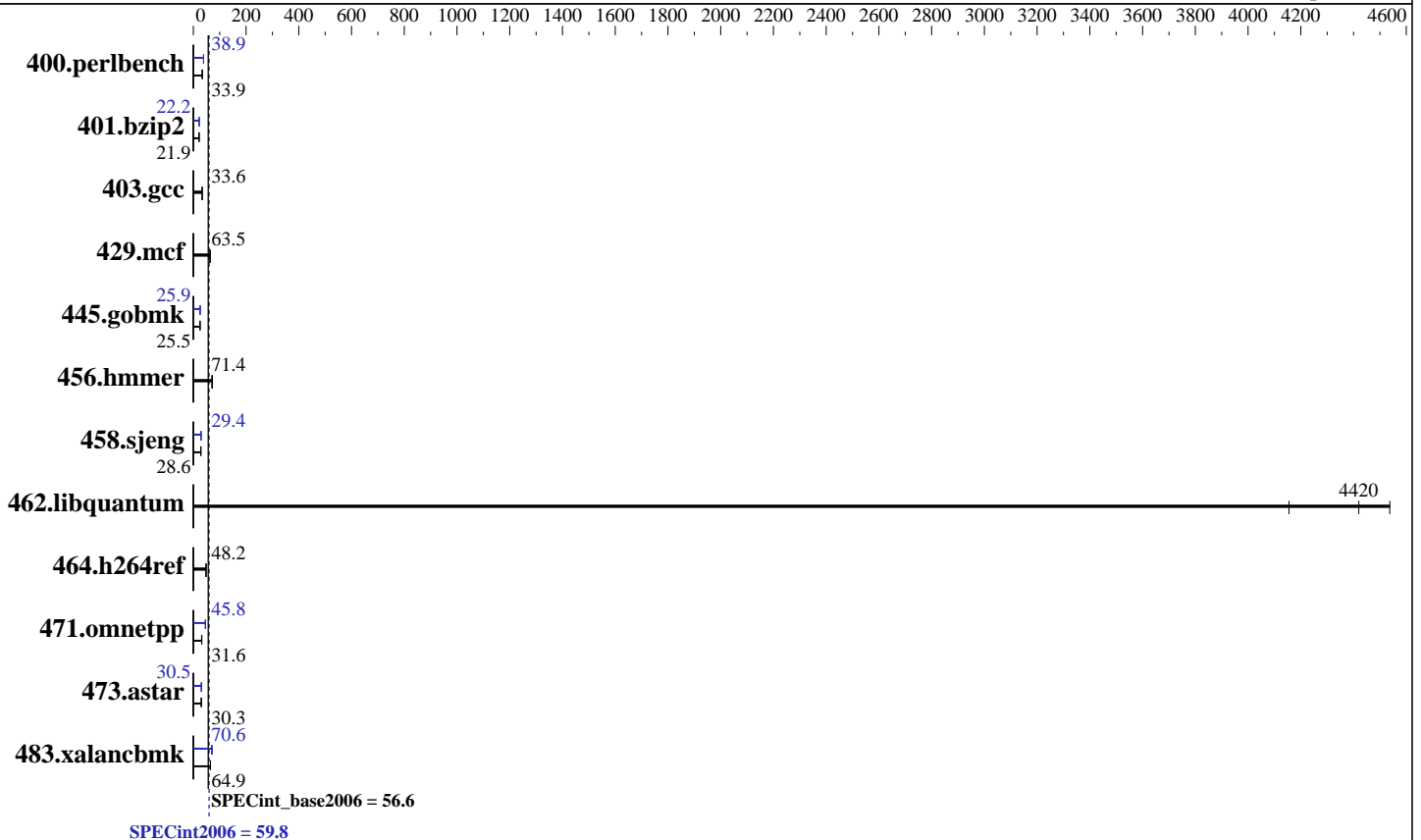
Test sponsor: HPE

Tested by: HPE

Test date: Oct-2016

Hardware Availability: Dec-2016

Software Availability: Sep-2016



## Hardware

CPU Name: Intel Xeon E5-2630L v4  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz  
 CPU MHz: 1800  
 FPU: Integrated  
 CPU(s) enabled: 20 cores, 2 chips, 10 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: 25 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-R, running at 2133 MHz)  
 Disk Subsystem: 1 x 600 GB 10 K SAS, RAID 0  
 Other Hardware: None

## Software

Operating System: SUSE Linux Enterprise Server 12 (x86\_64) SP1, Kernel 3.12.49-11-default  
 Compiler: C/C++; Version 17.0.0.098 of Intel C++ Studio XE for Linux  
 Auto Parallel: Yes  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V10.2



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	287	34.0	<b><u>288</u></b>	<b><u>33.9</u></b>	289	33.8	251	38.9	251	38.9	<b><u>251</u></b>	<b><u>38.9</u></b>
401.bzip2	<b><u>441</u></b>	<b><u>21.9</u></b>	441	21.9	442	21.8	435	22.2	435	22.2	<b><u>435</u></b>	<b><u>22.2</u></b>
403.gcc	240	33.6	<b><u>240</u></b>	<b><u>33.6</u></b>	240	33.6	240	33.6	<b><u>240</u></b>	<b><u>33.6</u></b>	240	33.6
429.mcf	<b><u>144</u></b>	<b><u>63.5</u></b>	143	63.6	145	62.8	<b><u>144</u></b>	<b><u>63.5</u></b>	143	63.6	145	62.8
445.gobmk	412	25.5	<b><u>412</u></b>	<b><u>25.5</u></b>	413	25.4	404	25.9	405	25.9	<b><u>404</u></b>	<b><u>25.9</u></b>
456.hammer	131	71.1	131	71.4	<b><u>131</u></b>	<b><u>71.4</u></b>	131	71.1	131	71.4	<b><u>131</u></b>	<b><u>71.4</u></b>
458.sjeng	423	28.6	425	28.5	<b><u>424</u></b>	<b><u>28.6</u></b>	412	29.4	<b><u>412</u></b>	<b><u>29.4</u></b>	411	29.4
462.libquantum	4.57	4540	4.99	4160	<b><u>4.69</u></b>	<b><u>4420</u></b>	4.57	4540	4.99	4160	<b><u>4.69</u></b>	<b><u>4420</u></b>
464.h264ref	459	48.2	<b><u>459</u></b>	<b><u>48.2</u></b>	460	48.1	459	48.2	<b><u>459</u></b>	<b><u>48.2</u></b>	460	48.1
471.omnetpp	193	32.4	<b><u>198</u></b>	<b><u>31.6</u></b>	199	31.4	137	45.8	136	46.0	<b><u>136</u></b>	<b><u>45.8</u></b>
473.astar	231	30.4	232	30.3	<b><u>232</u></b>	<b><u>30.3</u></b>	230	30.5	<b><u>230</u></b>	<b><u>30.5</u></b>	229	30.6
483.xalancbmk	107	64.8	<b><u>106</u></b>	<b><u>64.9</u></b>	106	65.1	97.9	70.5	<b><u>97.8</u></b>	<b><u>70.6</u></b>	97.7	70.6

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

Power Profile set to Custom

Power Regulator 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

QPI Snoop Configuration set to Home Snoop

Thermal Configuration set to Maximum Cooling

Processor Power and Utilization Monitoring set to Disabled

Memory Refresh Rate set to 1x Refresh

Sysinfo program /home/cpu2006/config/sysinfo.rev6993

Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)

running on linux-hiyk Mon Oct 17 10:05:06 2016

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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 E5-2630L v4 @ 1.80GHz
 2 "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
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
cache size     : 25600 KB

```

```

From /proc/meminfo
MemTotal:      264548920 kB
HugePages_Total: 0
Hugepagesize:  2048 kB

```

```

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP1

```

```

From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 1
# 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-SP1"
VERSION_ID="12.1"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp1"

```

```

uname -a:
Linux linux-hiyk 3.12.49-11-default #1 SMP Wed Nov 11 20:52:43 UTC 2015
(8d714a0) x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Oct 17 10:04

```

SPEC is set to: /home/cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda4       xfs   331G  78G  253G  24% /home

```

Additional information from dmidecode:

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## Platform Notes (Continued)

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 I37 09/14/2016

Memory:

8x UNKNOWN NOT AVAILABLE

16x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2400 MHz, configured at 2133 MHz

(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 UNKNOWN NOT AVAILABLE 16 GB 2 rank 2400 MHz, configured at 2133 MHz

## General Notes

Environment variables set by runspec before the start of the run:

KMP\_AFFINITY = "granularity=fine,scatter"

LD\_LIBRARY\_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh10.2"

OMP\_NUM\_THREADS = "20"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM  
memory using Redhat Enterprise Linux 7.2

## 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

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## Base Portability Flags (Continued)

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 -qopt-prefetch  
-auto-p32

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32  
-Wl,-z,muldefs -L/sh10.2 -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/compilers\_and\_libraries\_2017/linux/lib/ia32

445.gobmk: icc -m32 -L/opt/intel/compilers\_and\_libraries\_2017/linux/lib/ia32

C++ benchmarks (except as noted below):

icc -m32 -L/opt/intel/compilers\_and\_libraries\_2017/linux/lib/ia32

473.astar: icpc -m64

## Peak Portability Flags

400.perlbench: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX\_IA32

401.bzip2: -DSPEC\_CPU\_LP64

403.gcc: -DSPEC\_CPU\_LP64

429.mcf: -DSPEC\_CPU\_LP64

445.gobmk: -D\_FILE\_OFFSET\_BITS=64

456.hmmer: -DSPEC\_CPU\_LP64

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## Peak Portability Flags (Continued)

458.sjeng: -DSPEC\_CPU\_LP64  
 462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
 464.h264ref: -DSPEC\_CPU\_LP64  
 471.omnetpp: -D\_FILE\_OFFSET\_BITS=64  
 473.astar: -DSPEC\_CPU\_LP64  
 483.xalancbmk: -D\_FILE\_OFFSET\_BITS=64 -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)  
 -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
 -no-prec-div(pass 2) -qopt-prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)  
 -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
 -no-prec-div -auto-ilp32 -qopt-prefetch

403.gcc: basepeak = yes

429.mcf: basepeak = yes

445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)  
 -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
 -no-prec-div(pass 2)

456.hmmmer: basepeak = yes

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)  
 -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
 -no-prec-div(pass 2) -unroll4

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)  
 -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)  
 -no-prec-div(pass 2) -qopt-ra-region-strategy=block  
 -Wl,-z,muldefs -L/sh10.2 -lsmarheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch  
 -auto-p32 -Wl,-z,muldefs -L/sh10.2 -lsmarheap64

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## Peak Optimization Flags (Continued)

483.xalanbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch  
-Wl,-z,muldefs -L/sh10.2 -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/HP-Platform-Flags-Intel-V1.2-HSW-revE.html>

<http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64.html>

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

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

<http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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