



SPEC® CINT2006 Result

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Hewlett-Packard Company

SPECint®2006 = 36.7

ProLiant DL580 Gen9
(1.90 Ghz, Intel Xeon E7-4820 v3)

SPECint_base2006 = 35.1

CPU2006 license: 3

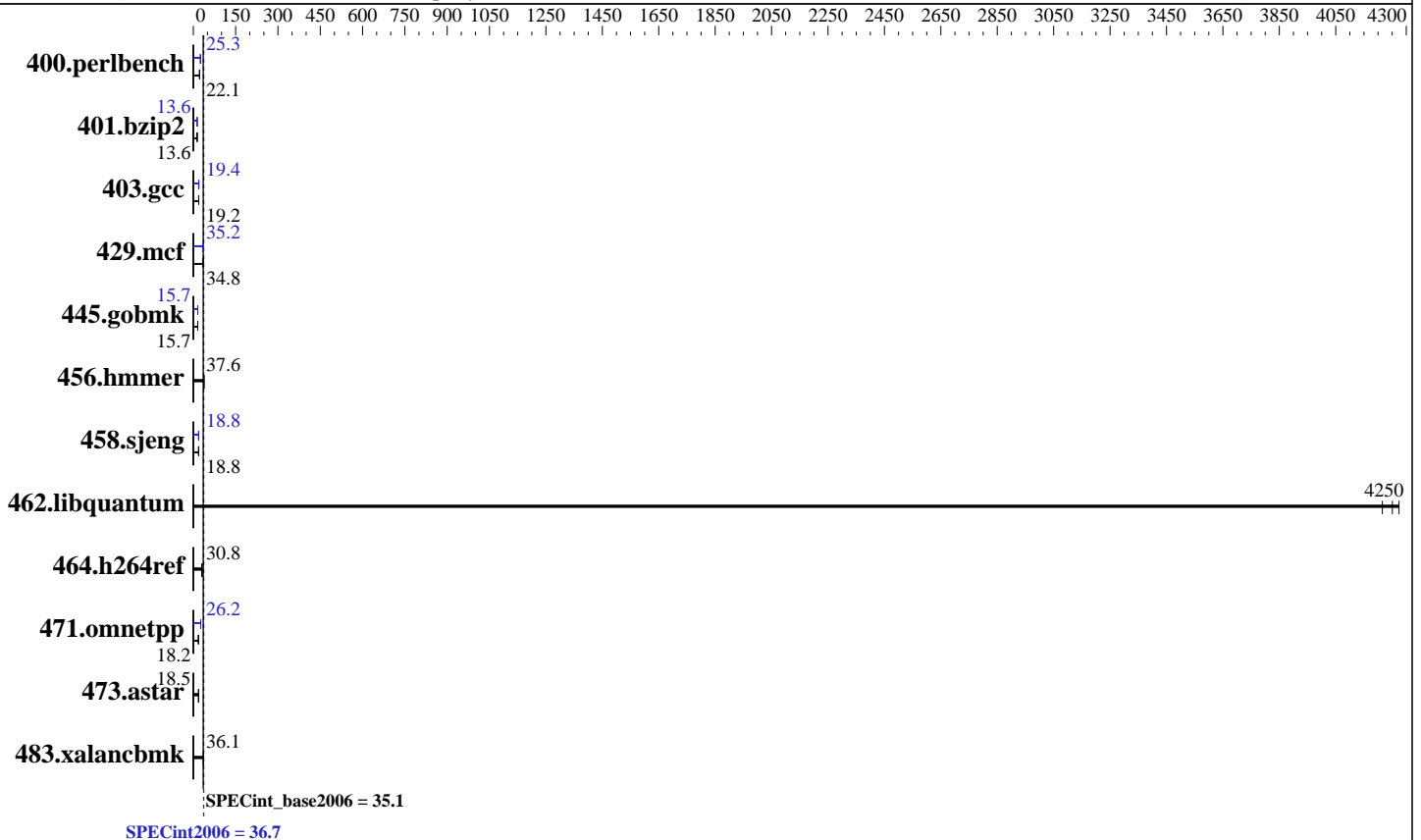
Test date: Jun-2015

Test sponsor: Hewlett-Packard Company

Hardware Availability: Jun-2015

Tested by: Hewlett-Packard Company

Software Availability: Oct-2014



Hardware

CPU Name: Intel Xeon E7-4820 v3
 CPU Characteristics:
 CPU MHz: 1900
 FPU: Integrated
 CPU(s) enabled: 40 cores, 4 chips, 10 cores/chip
 CPU(s) orderable: 2,4 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: 512 GB (32 x 16 GB 2Rx4 PC4-2133P-R, running at 1333 MHz)
 Disk Subsystem: 2 x 400 GB SAS SSD, RAID 1
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 12 (x86_64)
 Kernel 3.12.28-4-default
 Compiler: C/C++: Version 15.0.0.090 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	443	22.0	442	22.1	441	22.1	387	25.2	387	25.3	387	25.3
401.bzip2	708	13.6	711	13.6	711	13.6	710	13.6	710	13.6	710	13.6
403.gcc	419	19.2	419	19.2	418	19.3	412	19.6	416	19.4	415	19.4
429.mcf	263	34.7	262	34.8	259	35.2	260	35.1	258	35.3	259	35.2
445.gobmk	667	15.7	667	15.7	667	15.7	666	15.8	667	15.7	667	15.7
456.hammer	248	37.6	248	37.6	248	37.6	248	37.6	248	37.6	248	37.6
458.sjeng	645	18.8	644	18.8	645	18.8	643	18.8	644	18.8	643	18.8
462.libquantum	4.92	4220	4.85	4270	4.87	4250	4.92	4220	4.85	4270	4.87	4250
464.h264ref	718	30.8	714	31.0	718	30.8	718	30.8	714	31.0	718	30.8
471.omnetpp	347	18.0	344	18.2	343	18.2	239	26.2	238	26.2	239	26.1
473.astar	379	18.5	377	18.6	380	18.5	379	18.5	377	18.6	380	18.5
483.xalancbmk	195	35.5	189	36.6	191	36.1	195	35.5	189	36.6	191	36.1

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 Custom
HP Power Regulator to HP Static High Performance Mode
Minimum Processor Idle Power Core State set to C6 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
Sysinfo program /home/cpu2006/config/sysinfo.rev6914
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1
running on dl580gen9jks Wed Jun 24 11:13:49 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>

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Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E7-4820 v3 @ 1.90GHz
 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:      529321480 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 dl580gen9jks 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014
    (9879bd4) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jun 24 11:13

SPEC is set to: /home/cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda4       xfs   331G  5.4G  325G   2% /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 U17 03/13/2015

Memory:

32x HP 752369-081 16 GB 2 rank 2133 MHz, configured at 1333 MHz
64x UNKNOWN NOT AVAILABLE

(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 one line reading as:

32x HP 752369-081 16 GB 2 rank 2133 MHz, configured at 1333 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/sh"

OMP_NUM_THREADS = "40"

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

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.hmmmer: -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

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Base Portability Flags (Continued)

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:

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

400.perlbench: icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

445.gobmk: icc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

C++ benchmarks (except as noted below):

icpc -m64

471.omnetpp: icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32

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

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Peak Portability Flags (Continued)

473.astar: -DSPEC_CPU_LP64
483.xalancbmk: -DSPEC_CPU_LP64 -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

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.hmmmer: 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: basepeak = yes



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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>

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For other inquiries, please contact webmaster@spec.org.

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