SPEC® CINT2006 Result

Hewlett-Packard Company

SPECint®_rate2006 = 1980

ProLiant DL580 Gen9
(2.80 GHz, Intel Xeon E7-8891 v3)

SPECint_rate_base2006 = 1900

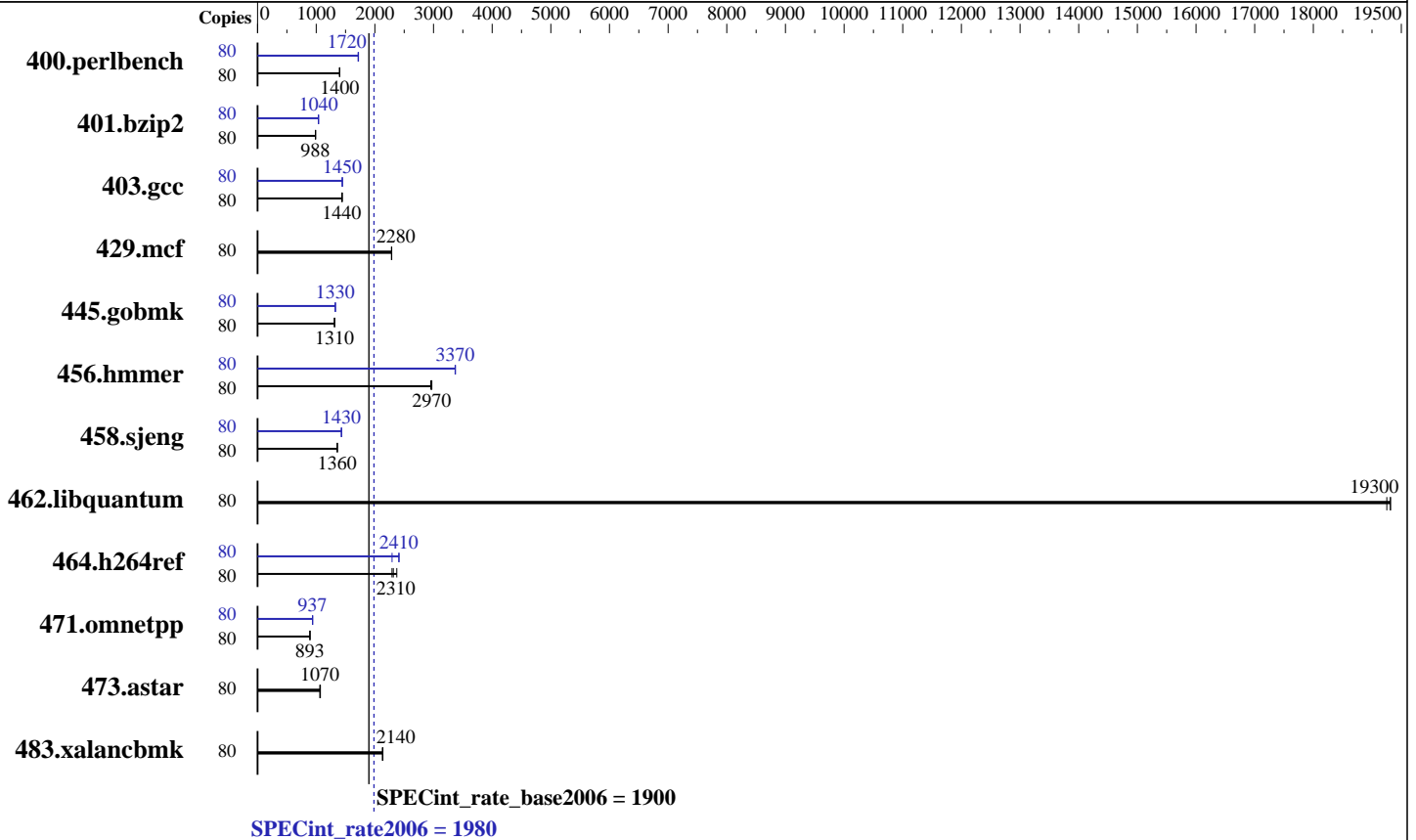|	
CPU2006 license: 3	**Test date:** May-2015
Test sponsor: Hewlett-Packard Company	**Hardware Availability:** May-2015
Tested by: Hewlett-Packard Company	**Software Availability:** Oct-2014

SPECint_rate_base2006 = 1900

SPECint_rate2006 = 1980

Hardware

CPU Name:	Intel Xeon E7-8891 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.50 GHz
CPU MHz:	2800
FPU:	Integrated
CPU(s) enabled:	40 cores, 4 chips, 10 cores/chip, 2 threads/core
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:	45 MB I+D on chip per chip
Other Cache:	None
Memory:	512 GB (32 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
Disk Subsystem:	1 x 400 GB SAS SSD, RAID 0
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:	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

SPEC CINT2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL580 Gen9
(2.80 GHz, Intel Xeon E7-8891 v3)

SPECint_rate2006 = 1980

SPECint_rate_base2006 = 1900

CPU2006 license: 3

Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: May-2015

Hardware Availability: May-2015

Software Availability: Oct-2014

Results Table

Benchmark	Copies	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	80	560	1400	**558**	**1400**	558	1400	80	456	1710	454	1720	**455**	**1720**
401.bzip2	80	782	987	780	990	**782**	**988**	80	744	1040	742	1040	**743**	**1040**
403.gcc	80	445	1450	**448**	**1440**	448	1440	80	**446**	**1450**	446	1440	445	1450
429.mcf	80	319	2280	**319**	**2280**	319	2290	80	319	2280	**319**	**2280**	319	2290
445.gobmk	80	639	1310	640	1310	**639**	**1310**	80	633	1330	633	1330	**633**	**1330**
456.hmmer	80	**252**	**2970**	251	2970	253	2950	80	222	3370	**221**	**3370**	221	3370
458.sjeng	80	712	1360	712	1360	**712**	**1360**	80	**677**	**1430**	677	1430	676	1430
462.libquantum	80	86.1	19300	**85.8**	**19300**	85.8	19300	80	86.1	19300	**85.8**	**19300**	85.8	19300
464.h264ref	80	772	2290	**765**	**2310**	746	2370	80	**736**	**2410**	733	2410	772	2290
471.omnetpp	80	559	894	560	893	**560**	**893**	80	**533**	**937**	534	937	532	940
473.astar	80	528	1060	524	1070	**527**	**1070**	80	528	1060	524	1070	**527**	**1070**
483.xalancbmk	80	258	2140	**258**	**2140**	259	2130	80	258	2140	**258**	**2140**	259	2130

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/transparent_hugepage/enabled
Filesystem page cache cleared with:
 echo 1 >        /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
 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 Enabled
  Thermal Configuration set to Maximum Cooling
  Processor Power and Utilization Monitoring set to Disabled
  Memory Refresh Rate set to 1x Refresh
```

Hewlett-Packard Company

SPECint_rate2006 = 1980

ProLiant DL580 Gen9
(2.80 GHz, Intel Xeon E7-8891 v3)

SPECint_rate_base2006 = 1900

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

Test date: May-2015
Hardware Availability: May-2015
Software Availability: Oct-2014

Platform Notes (Continued)

```
Sysinfo program /home/cpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on linux-yu57 Fri May 15 23:32:22 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 E7-8891 v3 @ 2.80GHz
      4 "physical id"s (chips)
      80 "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  : 20
      physical 0: cores 0 1 2 4 6 8 17 19 20 23
      physical 1: cores 0 1 2 4 6 8 17 19 20 23
      physical 2: cores 0 1 2 4 6 8 17 19 20 23
      physical 3: cores 0 1 2 4 6 8 17 19 20 23
   cache size : 46080 KB

From /proc/meminfo
   MemTotal:       529164112 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 linux-yu57 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014
   (9879bd4) x86_64 x86_64 x86_64 GNU/Linux
```

Continued on next page

SPEC CINT2006 Result

Hewlett-Packard Company

ProLiant DL580 Gen9
(2.80 GHz, Intel Xeon E7-8891 v3)

SPECint_rate2006 =   1980

SPECint_rate_base2006 = 1900

CPU2006 license: 3

Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: May-2015
Hardware Availability: May-2015
Software Availability: Oct-2014

Platform Notes (Continued)

```
run-level 3 May 15 23:31

SPEC is set to: /home/cpu2006
   Filesystem       Type   Size  Used Avail Use% Mounted on
   /dev/sda4        xfs    331G   72G  259G  22% /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 U17 03/13/2015
   Memory:
   11x HP 752369-081 16 GB 2 rank 2133 MHz, configured at 1600 MHz
   64x UNKNOWN NOT AVAILABLE
   21x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2133 MHz, configured at 1600 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:
   11x HP 752369-081 16 GB 2 rank 2133 MHz, configured at 1600 MHz
   21x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2133 MHz, configured at 1600 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

SPECint_rate2006 =   1980

ProLiant DL580 Gen9
(2.80 GHz, Intel Xeon E7-8891 v3)

SPECint_rate_base2006 = 1900

CPU2006 license: 3

Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: May-2015

Hardware Availability: May-2015

Software Availability: Oct-2014

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
```

Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_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`

SPEC CINT2006 Result
Copyright 2006-2015 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL580 Gen9
(2.80 GHz, Intel Xeon E7-8891 v3)

SPECint_rate2006 =   1980

SPECint_rate_base2006 = 1900

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

Test date: May-2015
Hardware Availability: May-2015
Software Availability: Oct-2014

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

    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

SPEC CINT2006 Result
Copyright 2006-2015 Standard Performance Evaluation Corporation

Hewlett-Packard Company

ProLiant DL580 Gen9
(2.80 GHz, Intel Xeon E7-8891 v3)

SPECint_rate2006 =   1980

SPECint_rate_base2006 = 1900

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

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

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 Jun 2 13:48:50 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 2 June 2015.