SPEC® CINT2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise
(Test Sponsor: HPE)

ProLiant DL580 Gen9
(2.20 GHz, Intel Xeon E7-4850 v3)

$SPECint^{®}_rate2006 = $ 2100

$SPECint_rate_base2006 = $ 2010

CPU2006 license: 3		**Test date:**	Feb-2016
Test sponsor:	HPE	**Hardware Availability:**	May-2015
Tested by:	HPE	**Software Availability:**	Dec-2015

SPECint_rate_base2006 = 2010

SPECint_rate2006 = 2100

Hardware

CPU Name:	Intel Xeon E7-4850 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz:	2200
FPU:	Integrated
CPU(s) enabled:	56 cores, 4 chips, 14 cores/chip, 2 threads/core
CPU(s) orderable:	2,3,4 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:	35 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 600 GB 15 K SAS, RAID1
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 12 SP1 (x86_64) Kernel 3.12.49-11-default
Compiler:	C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux
Auto Parallel:	No
File System:	ext3
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V10.2

SPEC CINT2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise
(Test Sponsor: HPE)

ProLiant DL580 Gen9
(2.20 GHz, Intel Xeon E7-4850 v3)

SPECint_rate2006 =   2100
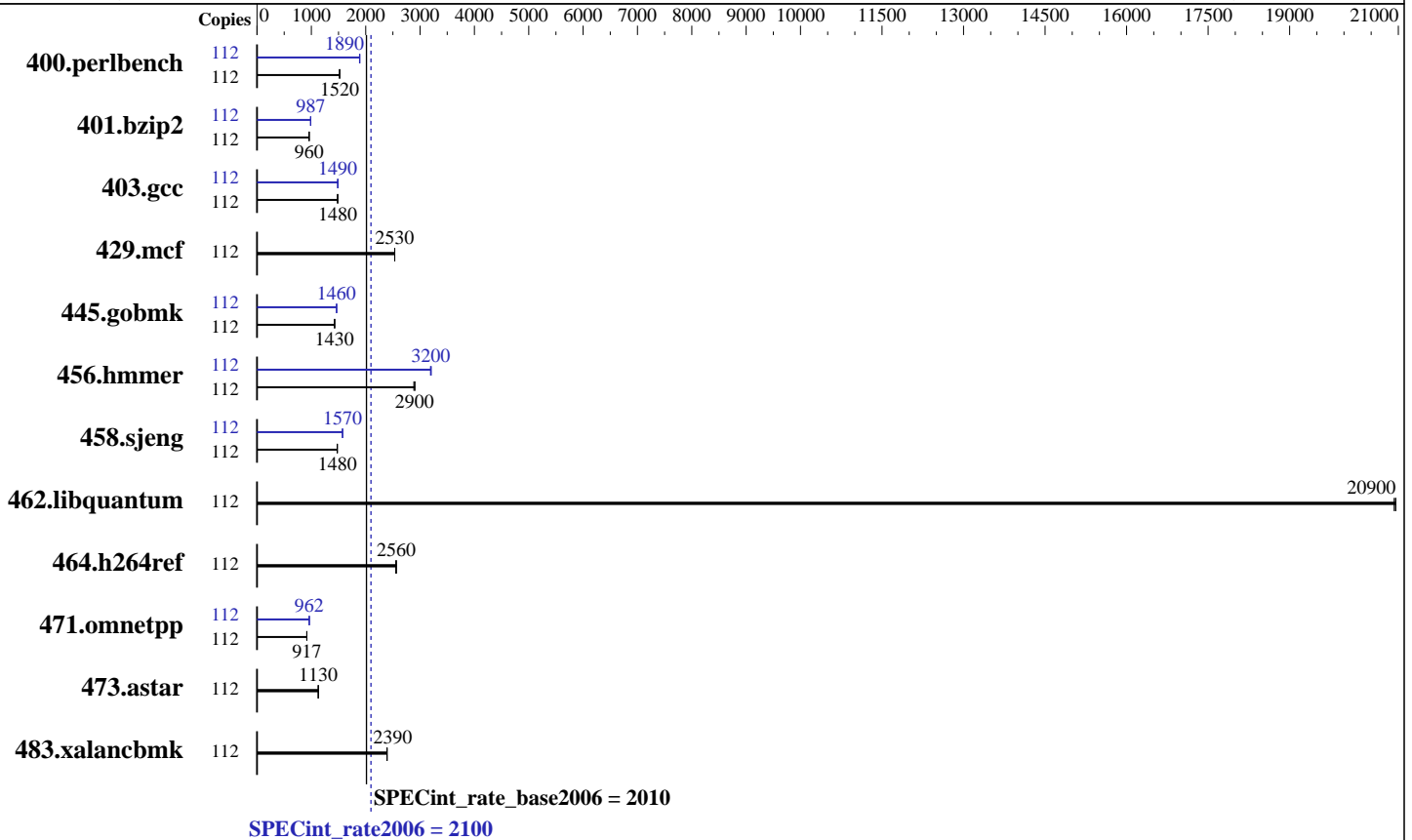
SPECint_rate_base2006 = 2010

CPU2006 license: 3
Test sponsor: HPE
Tested by: HPE

Test date: Feb-2016
Hardware Availability: May-2015
Software Availability: Dec-2015

Results Table

Benchmark	Base Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	112	720	1520	720	1520	**720**	**1520**	112	**579**	**1890**	580	1890	578	1890
401.bzip2	112	**1126**	**960**	1125	961	1130	957	112	1094	988	1096	986	**1095**	**987**
403.gcc	112	607	1490	**608**	**1480**	608	1480	112	**607**	**1490**	605	1490	608	1480
429.mcf	112	**403**	**2530**	403	2530	403	2530	112	**403**	**2530**	403	2530	403	2530
445.gobmk	112	822	1430	**823**	**1430**	823	1430	112	**802**	**1460**	802	1460	802	1460
456.hmmer	112	**360**	**2900**	362	2890	360	2910	112	327	3190	326	3210	**327**	**3200**
458.sjeng	112	918	1480	**917**	**1480**	917	1480	112	**861**	**1570**	861	1570	861	1570
462.libquantum	112	111	20900	**111**	**20900**	111	21000	112	111	20900	**111**	**20900**	111	21000
464.h264ref	112	971	2550	966	2560	**967**	**2560**	112	971	2550	966	2560	**967**	**2560**
471.omnetpp	112	763	917	**763**	**917**	764	916	112	**728**	**962**	729	961	728	962
473.astar	112	696	1130	**697**	**1130**	698	1130	112	696	1130	**697**	**1130**	698	1130
483.xalancbmk	112	323	2390	**323**	**2390**	323	2390	112	323	2390	**323**	**2390**	323	2390

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:
       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
       Minimum Processor Idle Power Package State set to No Package State
       Collaborative Power Control set to Disabled
       Thermal Configuration set so Maximum Cooling
       Processor Power and Utilization Monitoring set to Disabled
       Memory Refresh Rate set to 1x Refresh

     Sysinfo program /cpu/config/sysinfo.rev6914

Hewlett Packard Enterprise

(Test Sponsor: HPE)

SPECint_rate2006 =   2100

ProLiant DL580 Gen9
(2.20 GHz, Intel Xeon E7-4850 v3)

SPECint_rate_base2006 = 2010

CPU2006 license: 3	**Test date:** Feb-2016
Test sponsor: HPE	**Hardware Availability:** May-2015
Tested by: HPE	**Software Availability:** Dec-2015

Platform Notes (Continued)

```
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on pl21 Sun Feb 28 01:32:13 2016

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 E7-4850 v3 @ 2.20GHz
      4 "physical id"s (chips)
      112 "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 : 14
      siblings  : 28
      physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
      physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
      physical 2: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
      physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
   cache size : 35840 KB

From /proc/meminfo
   MemTotal:       529318900 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

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 pl21 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 Feb 25 14:54

SPEC is set to: /cpu
   Filesystem      Type  Size  Used Avail Use% Mounted on
```

SPEC CINT2006 Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)

ProLiant DL580 Gen9
(2.20 GHz, Intel Xeon E7-4850 v3)

SPECint_rate2006 =   2100

SPECint_rate_base2006 = 2010

CPU2006 license: 3
Test sponsor: HPE
Tested by: HPE

Test date: Feb-2016
Hardware Availability: May-2015
Software Availability: Dec-2015

Platform Notes (Continued)

```
     /dev/sda1      ext3  550G  148G  375G  29% /
 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 05/06/2015
    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:
 LD_LIBRARY_PATH = "/cpu/libs/32:/cpu/libs/64:/cpu/sh"

 Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB
 memory using RedHat EL 7.1
```

Base Compiler Invocation

C benchmarks:
```
    icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
```

C++ benchmarks:
```
    icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
```

Base Portability Flags

```
   400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32
      401.bzip2: -D_FILE_OFFSET_BITS=64
        403.gcc: -D_FILE_OFFSET_BITS=64
        429.mcf: -D_FILE_OFFSET_BITS=64
      445.gobmk: -D_FILE_OFFSET_BITS=64
      456.hmmer: -D_FILE_OFFSET_BITS=64
      458.sjeng: -D_FILE_OFFSET_BITS=64
   462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
     464.h264ref: -D_FILE_OFFSET_BITS=64
     471.omnetpp: -D_FILE_OFFSET_BITS=64
```

SPEC CINT2006 Result

Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL580 Gen9
(2.20 GHz, Intel Xeon E7-4850 v3)

SPECint_rate2006 =   2100

SPECint_rate_base2006 = 2010

CPU2006 license: 3

Test sponsor: HPE

Tested by: HPE

Test date: Feb-2016
Hardware Availability: May-2015
Software Availability: Dec-2015

Base Portability Flags (Continued)

         473.astar: `-D_FILE_OFFSET_BITS=64`
    483.xalancbmk: `-D_FILE_OFFSET_BITS=64 -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`

Base Other Flags

C benchmarks:

         403.gcc: `-Dalloca=_alloca`

Peak Compiler Invocation

C benchmarks (except as noted below):
    `icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin`

    400.perlbench: `icc -m64`

        401.bzip2: `icc -m64`

       456.hmmer: `icc -m64`

        458.sjeng: `icc -m64`

C++ benchmarks:
    `icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin`

Peak Portability Flags

    400.perlbench: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64`
        401.bzip2: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64`
         403.gcc: `-D_FILE_OFFSET_BITS=64`
         429.mcf: `-D_FILE_OFFSET_BITS=64`

Hewlett Packard Enterprise
(Test Sponsor: HPE)

ProLiant DL580 Gen9
(2.20 GHz, Intel Xeon E7-4850 v3)

SPECint_rate2006 =   2100

SPECint_rate_base2006 = 2010

CPU2006 license: 3
Test sponsor: HPE
Tested by: HPE

Test date: Feb-2016
Hardware Availability: May-2015
Software Availability: Dec-2015

Peak Portability Flags (Continued)

```
   445.gobmk: -D_FILE_OFFSET_BITS=64
   456.hmmer: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
   458.sjeng: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LP64
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
  464.h264ref: -D_FILE_OFFSET_BITS=64
  471.omnetpp: -D_FILE_OFFSET_BITS=64
    473.astar: -D_FILE_OFFSET_BITS=64
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
```

Peak Optimization Flags

C benchmarks:

```
400.perlbench: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
              -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
              -par-num-threads=1(pass 1) -prof-use(pass 2) -auto-ilp32

   401.bzip2: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
              -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
              -par-num-threads=1(pass 1) -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:threadsafe(pass 1)
              -prof-use(pass 2) -par-num-threads=1(pass 1) -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:threadsafe(pass 1)
              -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
              -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4
              -auto-ilp32

462.libquantum: basepeak = yes

  464.h264ref: basepeak = yes
```

C++ benchmarks:

```
  471.omnetpp: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
              -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2)
              -par-num-threads=1(pass 1) -prof-use(pass 2) -ansi-alias
              -opt-ra-region-strategy=block -Wl,-z,muldefs
              -L/sh -lsmartheap
```

SPEC CINT2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise
(Test Sponsor: HPE)

ProLiant DL580 Gen9
(2.20 GHz, Intel Xeon E7-4850 v3)

SPECint_rate2006 = 2100

SPECint_rate_base2006 = 2010

CPU2006 license: 3		**Test date:**	Feb-2016
Test sponsor:	HPE	**Hardware Availability:**	May-2015
Tested by:	HPE	**Software Availability:**	Dec-2015

Peak Optimization Flags (Continued)

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-ic16.0-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-ic16.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/HP-Platform-Flags-Intel-V1.2-HSW-revE.xml

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 Apr 5 14:53:09 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 5 April 2016.