SPEC® CINT2006 Result
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Hewlett Packard Enterprise
(Test Sponsor: HPE)

Superdome Flex
(2.50 GHz, Intel Xeon Platinum 8180)

$SPECint®\_rate2006 =$ Not Run

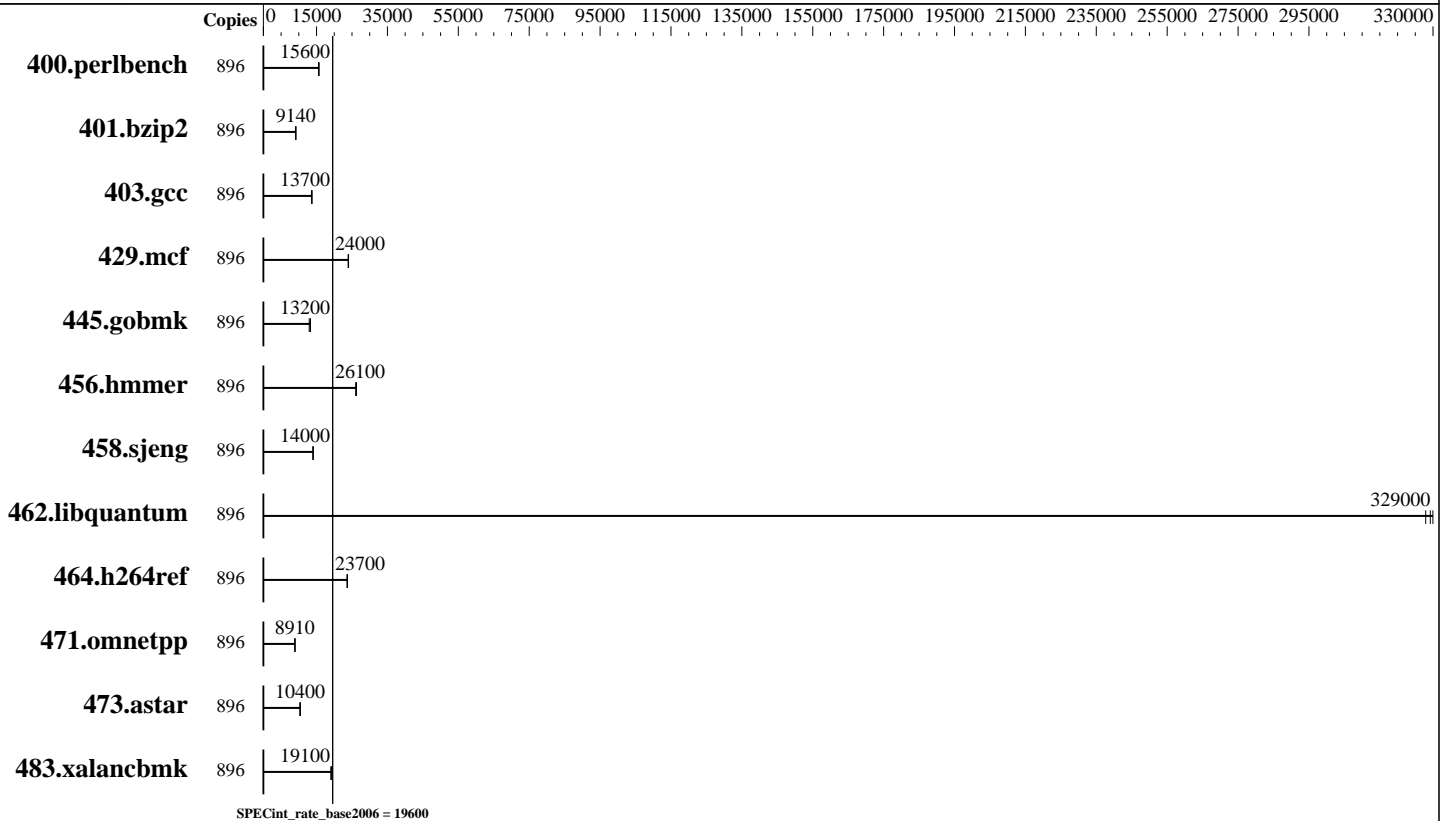$SPECint\_rate\_base2006 =$ 19600

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

Test date: Dec-2017
Hardware Availability: Mar-2018
Software Availability: Mar-2018

Benchmark	Copies	Result
400.perlbench	896	15600
401.bzip2	896	9140
403.gcc	896	13700
429.mcf	896	24000
445.gobmk	896	13200
456.hmmer	896	26100
458.sjeng	896	14000
462.libquantum	896	329000
464.h264ref	896	23700
471.omnetpp	896	8910
473.astar	896	10400
483.xalancbmk	896	19100

Graph scale (Copies): 0 15000 35000 55000 75000 95000 115000 135000 155000 175000 195000 215000 235000 255000 275000 295000 330000

SPECint_rate_base2006 = 19600

Hardware

CPU Name:	Intel Xeon Platinum 8180
CPU Characteristics:	Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz:	2500
FPU:	Integrated
CPU(s) enabled:	448 cores, 16 chips, 28 cores/chip, 2 threads/core
CPU(s) orderable:	4 to 32 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core
L3 Cache:	38.5 MB I+D on chip per chip
Other Cache:	None
Memory:	6 TB (192 x 32 GB 2Rx4 PC4-2666V-R)
Disk Subsystem:	6 TB tmpfs
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 12 (x86_64) SP3, Kernel 4.4.92-6.30-default
Compiler:	C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux
Auto Parallel:	No
File System:	tmpfs
System State:	Run level 3 (multi-user)
Base Pointers:	32-bit
Peak Pointers:	Not Applicable
Other Software:	Microquill SmartHeap V10.2 HPE Foundation Software 1.0, Build 717a130.sles12sp3-1710052000

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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	896	**560**	**15600**	558	15700	560	15600							
401.bzip2	896	**946**	**9140**	946	9140	944	9160							
403.gcc	896	**527**	**13700**	530	13600	526	13700							
429.mcf	896	**341**	**24000**	342	23900	340	24000							
445.gobmk	896	707	13300	**711**	**13200**	727	12900							
456.hmmer	896	321	26100	**320**	**26100**	318	26300							
458.sjeng	896	772	14000	**774**	**14000**	775	14000							
462.libquantum	896	**56.4**	**329000**	56.3	330000	56.6	328000							
464.h264ref	896	**838**	**23700**	836	23700	839	23600							
471.omnetpp	896	**628**	**8910**	628	8910	630	8890							
473.astar	896	**605**	**10400**	610	10300	605	10400							
483.xalancbmk	896	**323**	**19100**	323	19200	324	19100							

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:
shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run
The tmpfs filesystem was set up with:
  mkdir -p /dev/shm/cpu2006-16S
  mount -t tmpfs -o size=6144G,rw tmpfs /dev/shm/cpu2006-16S

Platform Notes

Rack Management Controller setting:
   modify npar pnum=0 ras=hpc

Sysinfo program /dev/shm/cpu2006-16S/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on uv4test40-sys Sun Dec 17 21:00:34 2017

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
Continued on next page

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Platform Notes (Continued)

```
   From /proc/cpuinfo
      model name : Intel(R) Xeon(R) Platinum 8180 CPU @ 2.50GHz
         16 "physical id"s (chips)
         896 "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 : 28
         siblings  : 56
         physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
         physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
         physical 2: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
         physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
         physical 4: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
         physical 5: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
         physical 6: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
         physical 7: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
         physical 8: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
         physical 9: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
         25 26 27 28 29 30
         physical 10: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22
         24 25 26 27 28 29 30
         physical 11: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22
         24 25 26 27 28 29 30
         physical 12: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22
         24 25 26 27 28 29 30
         physical 13: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22
         24 25 26 27 28 29 30
         physical 14: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22
         24 25 26 27 28 29 30
         physical 15: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22
         24 25 26 27 28 29 30
      cache size : 39424 KB

   From /proc/meminfo
      MemTotal:       6145710096 kB
      HugePages_Total:        0
      Hugepagesize:        2048 kB

   /usr/bin/lsb_release -d
      SUSE Linux Enterprise Server 12 SP3
```

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Platform Notes (Continued)

```
    From /etc/*release* /etc/*version*
       SuSE-release:
          SUSE Linux Enterprise Server 12 (x86_64)
          VERSION = 12
          PATCHLEVEL = 3
          # 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.
       hpe-foundation-release: HPE Foundation Software 1.0, Build
       717a130.sles12sp3-1710052000
       os-release:
          NAME="SLES"
          VERSION="12-SP3"
          VERSION_ID="12.3"
          PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"
          ID="sles"
          ANSI_COLOR="0;32"
          CPE_NAME="cpe:/o:suse:sles:12:sp3"

    uname -a:
       Linux uv4test40-sys 4.4.92-6.30-default #1 SMP Mon Dec 4 08:08:30 UTC 2017
       (1fb0e00) x86_64 x86_64 x86_64 GNU/Linux

    run-level 3 Dec 17 01:00

    SPEC is set to: /dev/shm/cpu2006-16S
       Filesystem      Type   Size  Used Avail Use% Mounted on
       tmpfs          tmpfs  6.0T  2.1G  6.0T   1% /dev/shm/cpu2006-16S
    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 HPE IP147.006.000.143.000.1712051837 12/05/2017
      Memory:
       192x Hynix HMA84GR7AFR4N-VK 32 GB 2 rank 2666 MHz

    (End of data from sysinfo program)
```

General Notes

```
  Environment variables set by runspec before the start of the run:
  LD_LIBRARY_PATH = "/dev/shm/cpu2006-16S/lib/ia32:/dev/shm/cpu2006-16S/lib/intel64:/dev/shm/cpu2006-16S/sh10.2"

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

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Base Compiler Invocation

C benchmarks:
```
icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

C++ benchmarks:
```
icpc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

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

Base Optimization Flags

C benchmarks:
```
    -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
    -qopt-mem-layout-trans=3
```

C++ benchmarks:
```
    -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
    -qopt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh10.2 -lsmartheap
```

Base 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-ic17.0-official-linux64-revF.html
http://www.spec.org/cpu2006/flags/HPE-Superdome_Flex-RevA.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64-revF.xml
http://www.spec.org/cpu2006/flags/HPE-Superdome_Flex-RevA.xml

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

Tested with SPEC CPU2006 v1.2.
Report generated on Tue Jan 16 11:54:53 2018 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 13 January 2018.