SPEC® CINT2006 Result

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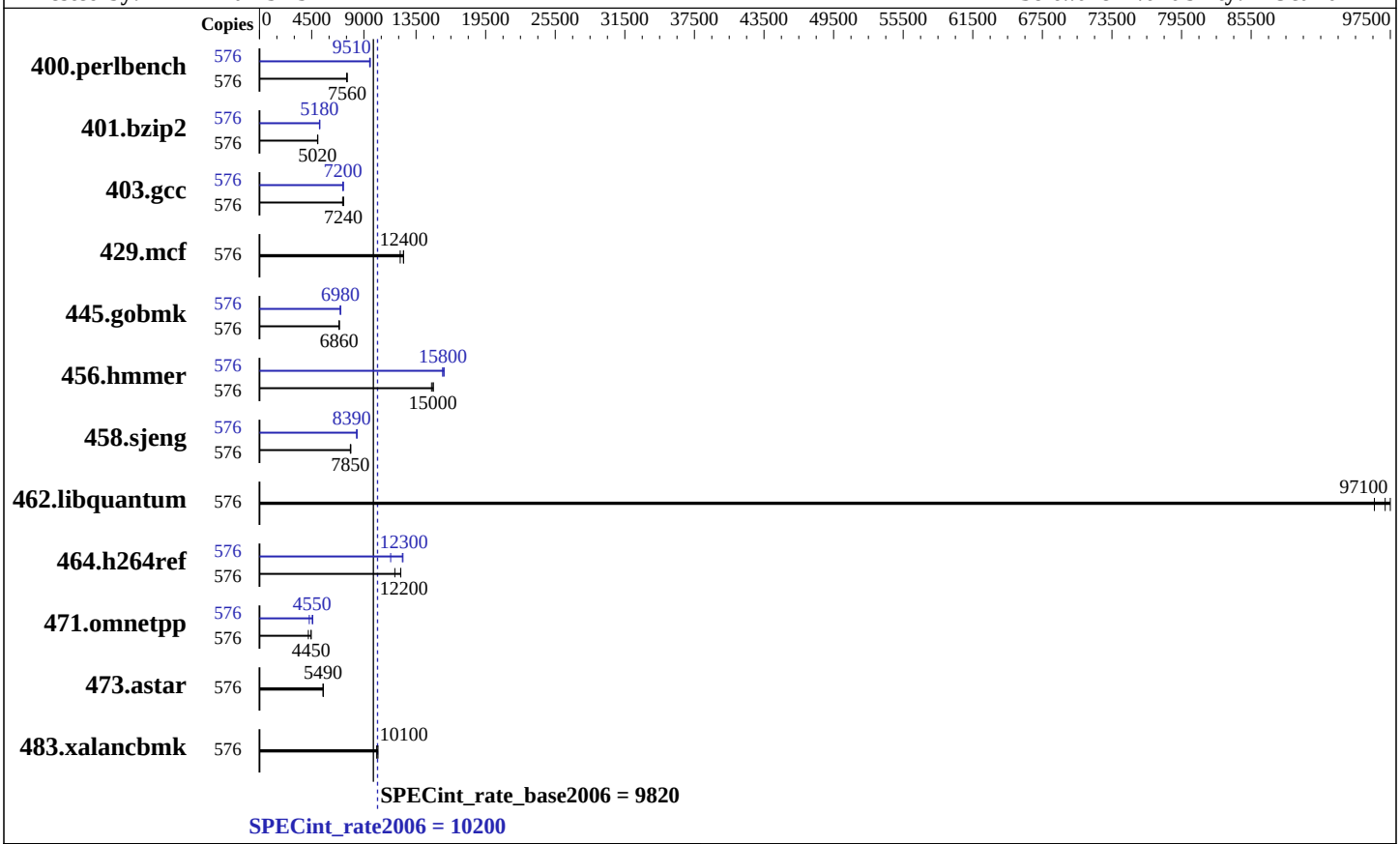
Bull SAS
bullion S16 (E7-8890 v3)

SPECint®_rate2006 = 10200

SPECint_rate_base2006 = 9820

CPU2006 license: 20
Test sponsor: Bull SAS
Tested by: Bull SAS

Test date: Sep-2015
Hardware Availability: Jun-2015
Software Availability: Oct-2014



Hardware

CPU Name:	Intel Xeon E7-8890 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz:	2500
FPU:	Integrated
CPU(s) enabled:	288 cores, 16 chips, 18 cores/chip, 2 threads/core
CPU(s) orderable:	2, 4, 8, 16 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:	4 TB (256 x 16 GB 2Rx4 PC4-2133P-R, running at 1600 MHz)
Disk Subsystem:	Micron M510 128 GB SSD
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 7.1 (Maipo) 3.10.0-229.el7.x86_64
Compiler:	C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux
Auto Parallel:	No
File System:	tmpfs
System State:	Run level 3 (Full multiuser mode)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V10.0

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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	576	745	7560	**745**	**7560**	749	7510	576	**592**	**9510**	589	9560	592	9500
401.bzip2	576	1111	5000	1107	5020	**1107**	**5020**	576	1068	5210	**1072**	**5180**	1075	5170
403.gcc	576	**641**	**7240**	640	7250	647	7170	576	640	7240	646	7180	**644**	**7200**
429.mcf	576	433	12100	423	12400	**423**	**12400**	576	433	12100	423	12400	**423**	**12400**
445.gobmk	576	882	6850	**881**	**6860**	876	6900	576	864	6990	867	6970	**866**	**6980**
456.hmmer	576	362	14800	**359**	**15000**	359	15000	576	340	15800	337	15900	**340**	**15800**
458.sjeng	576	890	7830	**888**	**7850**	885	7880	576	**830**	**8390**	831	8380	829	8400
462.libquantum	576	122	97500	**123**	**97100**	124	96100	576	122	97500	**123**	**97100**	124	96100
464.h264ref	576	**1047**	**12200**	1046	12200	1092	11700	576	1127	11300	1030	12400	**1035**	**12300**
471.omnetpp	576	809	4450	**809**	**4450**	855	4210	576	839	4290	**791**	**4550**	784	4590
473.astar	576	**737**	**5490**	737	5490	734	5510	576	**737**	**5490**	737	5490	734	5510
483.xalancbmk	576	**392**	**10100**	393	10100	389	10200	576	**392**	**10100**	393	10100	389	10200

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

```
SPEC files placed in /spec2006, with /spec2006
mounted as tmpfs with mpol=interleave, size=1200G
Stack size set to unlimited using "ulimit -s unlimited"
Turbo mode set with:
     cpupower -c all frequency-set -g performance
```

Platform Notes

```
BIOS configuration:
Set Efficiency Policy to Performance
Set Memory RAS mode to Performance
Baseboard Management Controller used to Force Full Fan Speed
Sysinfo program /spec2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Fri Sep  4 15:28:36 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
```

Continued on next page

Platform Notes (Continued)

```
      model name : Intel(R) Xeon(R) CPU E7-8890 v3 @ 2.50GHz
         16 "physical id"s (chips)
         576 "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 : 18
         siblings  : 36
         physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 2: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 3: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 4: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 5: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 6: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 7: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 8: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 9: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 10: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 11: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 12: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 13: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 14: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
         physical 15: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      cache size : 46080 KB

   From /proc/meminfo
      MemTotal:       4227105880 kB
      HugePages_Total:       0
      Hugepagesize:       2048 kB

   From /etc/*release* /etc/*version*
      os-release:
         NAME="Red Hat Enterprise Linux Server"
         VERSION="7.1 (Maipo)"
         ID="rhel"
         ID_LIKE="fedora"
         VERSION_ID="7.1"
         PRETTY_NAME="Red Hat Enterprise Linux Server 7.1 (Maipo)"
         ANSI_COLOR="0;31"
         CPE_NAME="cpe:/o:redhat:enterprise_linux:7.1:GA:server"
      redhat-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
      system-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
      system-release-cpe: cpe:/o:redhat:enterprise_linux:7.1:ga:server

   uname -a:
      Linux localhost.localdomain 3.10.0-229.el7.x86_64 #1 SMP Thu Jan 29 18:37:38
      EST 2015 x86_64 x86_64 x86_64 GNU/Linux

   run-level 3 Sep 3 17:37 last=5

   SPEC is set to: /spec2006
```

Continued on next page

Platform Notes (Continued)

```
     Filesystem     Type   Size  Used Avail Use% Mounted on
     none           tmpfs  1.2T  8.6G  1.2T   1% /spec2006
  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 Bull BIOSX08.029.00.102 08/27/2015
    Memory:
     256x Micron 36ASF2G72PZ-2G1A2 16 GB 2 rank  , configured at 1600 MHz
     128x NO DIMM Unknown

  (End of data from sysinfo program)
```

General Notes

```
 Environment variables set by runspec before the start of the run:
 LD_LIBRARY_PATH = "/spec2006/libs/32:/spec2006/libs/64:/spec2006/sh"

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

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

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`

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

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Bull-BullionS-Flags-V2.0.html
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Bull-BullionS-Flags-V2.0.xml
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml

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

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