SPEC® CINT2006 Result

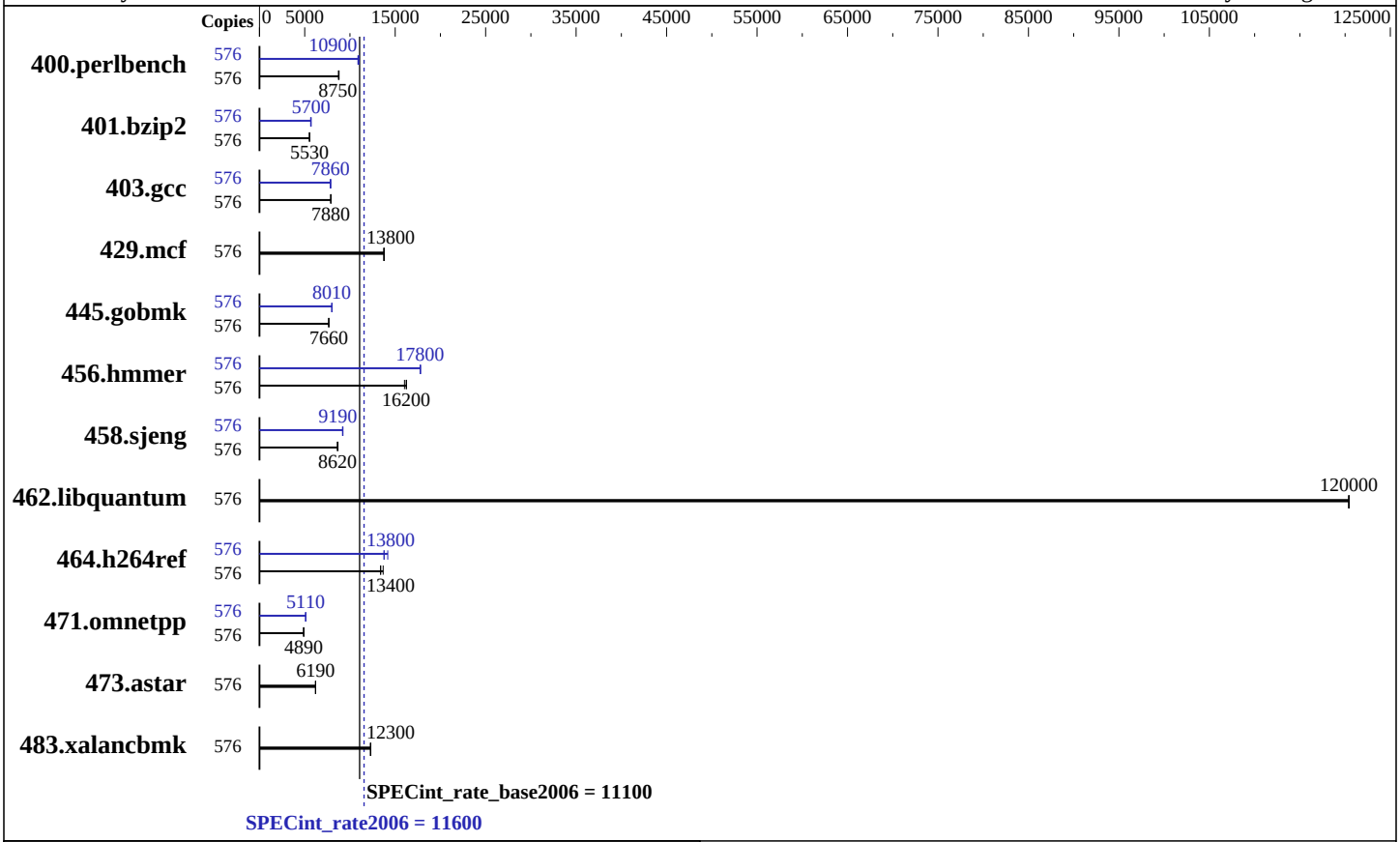
Bull SAS
bullion S16 (E7-8890 v3)

SPECint®_rate2006 = 11600

SPECint_rate_base2006 = 11100

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

Test date: Dec-2015
Hardware Availability: Jun-2015
Software Availability: Aug-2015



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:	1.2 TB LSI MR9381-4i4e (scsi)
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 11 (x86_64) SP4 3.0.101-63-default
Compiler:	C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux
Auto Parallel:	No
File System:	tmpfs
System State:	Run level 5 (Full multiuser with X11 graphics)
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V10.2 Updated gcc, glibc, and libstdc++

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	576	**643**	**8750**	640	8800	644	8740	576	**515**	**10900**	512	11000	517	10900
401.bzip2	576	1007	5520	**1006**	**5530**	1003	5540	576	975	5700	983	5650	**975**	**5700**
403.gcc	576	**588**	**7880**	586	7910	589	7870	576	**590**	**7860**	588	7880	593	7810
429.mcf	576	382	13700	**382**	**13800**	381	13800	576	382	13700	**382**	**13800**	381	13800
445.gobmk	576	**789**	**7660**	789	7660	788	7660	576	754	8010	756	7990	**755**	**8010**
456.hmmer	576	**331**	**16200**	335	16000	331	16300	576	**302**	**17800**	302	17800	302	17800
458.sjeng	576	**808**	**8620**	809	8620	803	8680	576	759	9190	**758**	**9190**	755	9230
462.libquantum	576	99.1	120000	99.1	120000	**99.1**	**120000**	576	99.1	120000	99.1	120000	**99.1**	**120000**
464.h264ref	576	**951**	**13400**	953	13400	932	13700	576	899	14200	926	13800	**925**	**13800**
471.omnetpp	576	**736**	**4890**	736	4890	737	4880	576	705	5110	704	5110	**704**	**5110**
473.astar	576	**653**	**6190**	653	6190	651	6210	576	**653**	**6190**	653	6190	651	6210
483.xalancbmk	576	**324**	**12300**	324	12300	323	12300	576	**324**	**12300**	324	12300	323	12300

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
To run the Intel binaries based off the Intel 16.0 compiler (with SLES11 SP4), the following software was updated:
gcc to version 4.3-62.200.2
gcc43 to version 4.3.4_20091019-0.37.30
glibc to version 2.14.1-14.12.5
glibc-devel to version 2.14.1-14.12.5
glibc-locale to version 2.14.1-14.12.5
libstdc++43-devel to version 4.3.4_20091019-0.37.30
libstdc++-devel to version 4.3-62.200.2
```

Platform Notes

```
BIOS configuration:
Set Efficiency Policy to Performance
Energy perf BIAS cfg mode = PERF
Set Memory RAS to Performance
Set Patrol Scrub to disable
```

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Platform Notes (Continued)

```
Baseboard Management Controller used to Force Full Fan Speed
Sysinfo program /specRam/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on borsalino Tue Dec 15 17:16:22 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 E7-8890 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:       4235810492 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   SUSE Linux Enterprise Server 11 (x86_64)

From /etc/*release* /etc/*version*
   SuSE-release:
      SUSE Linux Enterprise Server 11 (x86_64)
      VERSION = 11
      PATCHLEVEL = 4
   os-release:
      NAME="SLES"
      VERSION="11.4"
```

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Platform Notes (Continued)

```
        VERSION_ID="11.4"
        PRETTY_NAME="SUSE Linux Enterprise Server 11 SP4"
        ID="sles"
        ANSI_COLOR="0;32"
        CPE_NAME="cpe:/o:suse:sles:11:4"

   uname -a:
      Linux borsalino 3.0.101-63-default #1 SMP Tue Jun 23 16:02:31 UTC 2015
      (4b89d0c) x86_64 x86_64 x86_64 GNU/Linux

   run-level 5 Dec 15 11:51 last=S

   SPEC is set to: /specRam
      Filesystem     Type   Size  Used Avail Use% Mounted on
      none           tmpfs  1.2T  3.8G  1.2T   1% /specRam
   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 AR08.031.00.101 11/19/2015
     Memory:
      128x NO DIMM Unknown
      256x Samsung M393A2G40DB0-CPB 16 GB 2 rank  , configured at 1600 MHz

   (End of data from sysinfo program)
   BIOS egineering version number AR08.031.00.101 is identical to
   public version number BIOSX08.31.00.102
```

General Notes

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

  Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB
  memory using RedHat EL 7.1
  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/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin
```

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Base Compiler Invocation (Continued)

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
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

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Peak Compiler Invocation (Continued)

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
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

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Peak Optimization Flags (Continued)

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: -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) -unroll2
-ansi-alias

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

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-V2.1.html
http://www.spec.org/cpu2006/flags/Intel-ic16.0-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-V2.1.xml
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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