SPEC® CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

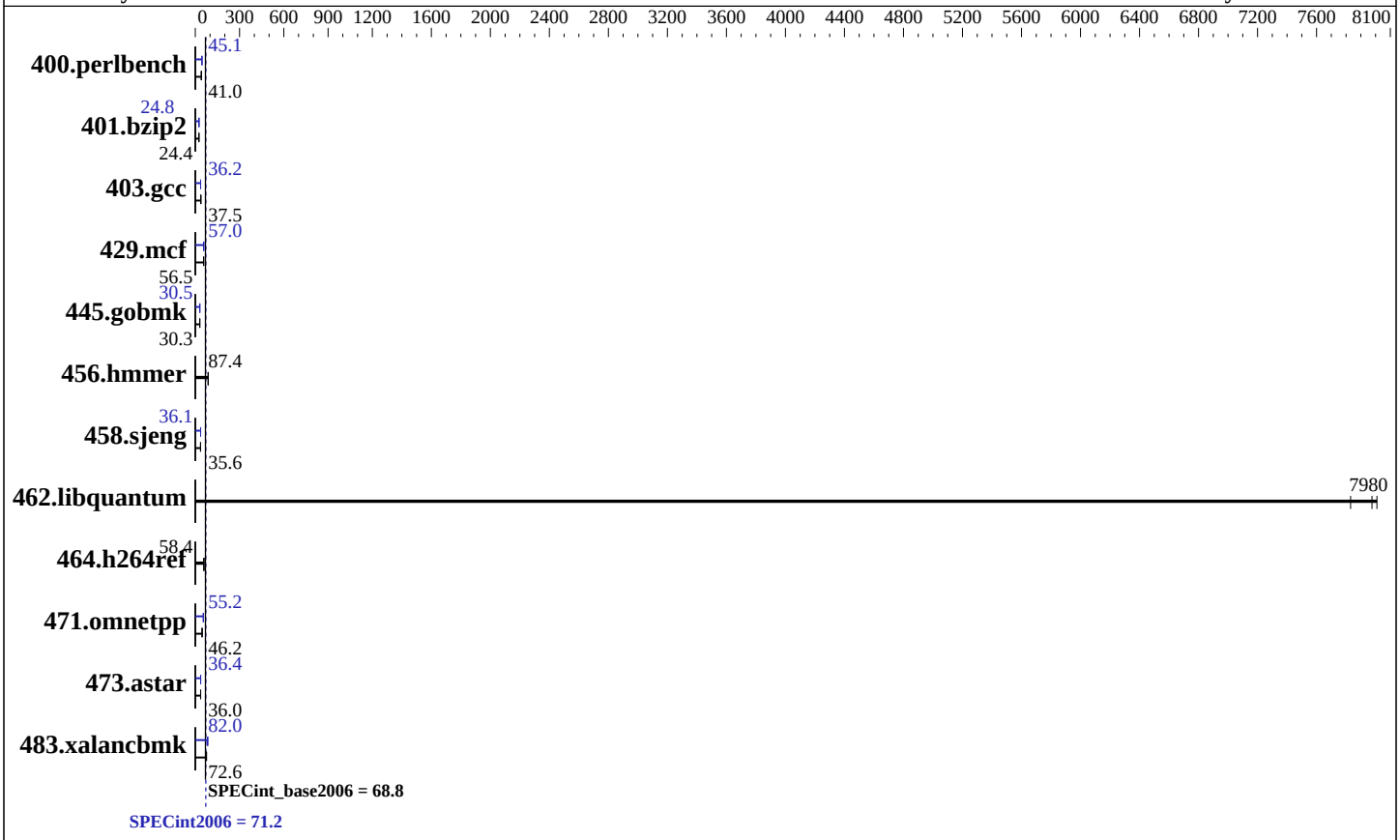
PowerEdge T630 (Intel Xeon E5-2697 v4, 2.30 GHz)

SPECint®2006 = 71.2

SPECint_base2006 = 68.8

CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.

Test date: Jun-2016
Hardware Availability: Jun-2016
Software Availability: Mar-2016



Hardware

CPU Name:	Intel Xeon E5-2697 v4
CPU Characteristics:	Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz:	2300
FPU:	Integrated
CPU(s) enabled:	36 cores, 2 chips, 18 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 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:	45 MB I+D on chip per chip
Other Cache:	None
Memory:	512 GB (16 x 32 GB 2Rx8 PC4-2400T-R)
Disk Subsystem:	1 x 400 GB SATA SSD
Other Hardware:	None

Software

Operating System:	Red Hat Enterprise Linux Server release 7.2 (Maipo) 3.10.0-327.el7.x86_64
Compiler:	C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux
Auto Parallel:	Yes
File System:	xfs
System State:	Run level 3 (multi-user)
Base Pointers:	32/64-bit
Peak Pointers:	32/64-bit
Other Software:	Microquill SmartHeap V10.2

SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Dell Inc.

PowerEdge T630 (Intel Xeon E5-2697 v4, 2.30 GHz)

SPECint2006 = 71.2

SPECint_base2006 = 68.8

CPU2006 license: 55
Test sponsor: Dell Inc.
Tested by: Dell Inc.

Test date: Jun-2016
Hardware Availability: Jun-2016
Software Availability: Mar-2016

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	239	40.9	238	41.1	**239**	**41.0**	217	44.9	**217**	**45.1**	216	45.2
401.bzip2	394	24.5	**395**	**24.4**	396	24.3	389	24.8	383	25.2	**389**	**24.8**
403.gcc	217	37.2	213	37.8	**215**	**37.5**	223	36.0	**222**	**36.2**	222	36.2
429.mcf	160	56.9	**161**	**56.5**	162	56.4	158	57.6	161	56.8	**160**	**57.0**
445.gobmk	346	30.3	**346**	**30.3**	346	30.3	**344**	**30.5**	344	30.5	345	30.4
456.hmmer	107	87.4	**107**	**87.4**	107	87.2	107	87.4	**107**	**87.4**	107	87.2
458.sjeng	**339**	**35.6**	339	35.7	340	35.6	334	36.2	335	36.1	**335**	**36.1**
462.libquantum	2.65	7830	**2.60**	**7980**	2.59	8010	2.65	7830	**2.60**	**7980**	2.59	8010
464.h264ref	379	58.3	378	58.6	**379**	**58.4**	379	58.3	378	58.6	**379**	**58.4**
471.omnetpp	133	47.0	138	45.2	**135**	**46.2**	113	55.3	117	53.4	**113**	**55.2**
473.astar	**195**	**36.0**	192	36.5	196	35.9	191	36.7	195	36.0	**193**	**36.4**
483.xalancbmk	**95.0**	**72.6**	90.0	76.7	95.8	72.1	80.2	86.0	**84.1**	**82.0**	84.8	81.4

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

```
The config file option 'submit' was used.
```

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

Platform Notes

```
BIOS settings:
Snoop Mode set to Home Snoop
Virtualization Technology disabled
System Profile set to custom
CPU Performance set to Maximum Performance
C States set to Autonomous
C1E enabled
Energy Efficient Turbo disabled
Uncore Frequency set to Dynamic
Energy Efficiency Policy set to Performance
Memory Patrol Scrub disabled
Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Fri Jun 24 13:32:24 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
```

Continued on next page

Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2697 v4 @ 2.30GHz
      2 "physical id"s (chips)
      72 "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
   cache size : 46080 KB

From /proc/meminfo
   MemTotal:       528280404 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
   os-release:
      NAME="Red Hat Enterprise Linux Server"
      VERSION="7.2 (Maipo)"
      ID="rhel"
      ID_LIKE="fedora"
      VERSION_ID="7.2"
      PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
      ANSI_COLOR="0;31"
      CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"
   redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
   system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:7.2:ga:server

uname -a:
   Linux localhost.localdomain 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29
   EDT 2015 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jun 24 13:24

SPEC is set to: /root/cpu2006-1.2
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda2      xfs   226G  7.9G  218G   4% /
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 Dell Inc. 2.2.1 06/06/2016
  Memory:
   16x 00CE00B300CE M393A4K40BB1-CRC 32 GB 2 rank 2400 MHz
   8x Not Specified Not Specified
```

Continued on next page

Platform Notes (Continued)

```
(End of data from sysinfo program)
```

General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/root/cpu2006-1.2/libs/32:/root/cpu2006-1.2/libs/64:/root/cpu2006-1.2/sh"
OMP_NUM_THREADS = "36"

 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
```

Base Compiler Invocation

C benchmarks:
```
icc  -m64
```

C++ benchmarks:
```
icpc -m64
```

Base Portability Flags

400.perlbench: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64`
401.bzip2: `-DSPEC_CPU_LP64`
403.gcc: `-DSPEC_CPU_LP64`
429.mcf: `-DSPEC_CPU_LP64`
445.gobmk: `-DSPEC_CPU_LP64`
456.hmmer: `-DSPEC_CPU_LP64`
458.sjeng: `-DSPEC_CPU_LP64`
462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`
464.h264ref: `-DSPEC_CPU_LP64`
471.omnetpp: `-DSPEC_CPU_LP64`
473.astar: `-DSPEC_CPU_LP64`
483.xalancbmk: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`

Base Optimization Flags

C benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32
```

C++ benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-Wl,-z,muldefs -L/sh -lsmartheap64
```

Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

Peak Compiler Invocation

C benchmarks (except as noted below):
`icc -m64`

400.perlbench: `icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin`

445.gobmk: `icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/compiler/lib/ia32_lin`

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

473.astar: `icpc -m64`

Peak Portability Flags

400.perlbench: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32`
401.bzip2: `-DSPEC_CPU_LP64`
403.gcc: `-DSPEC_CPU_LP64`
429.mcf: `-DSPEC_CPU_LP64`
445.gobmk: `-D_FILE_OFFSET_BITS=64`
456.hmmer: `-DSPEC_CPU_LP64`
458.sjeng: `-DSPEC_CPU_LP64`
462.libquantum: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX`
464.h264ref: `-DSPEC_CPU_LP64`
471.omnetpp: `-D_FILE_OFFSET_BITS=64`
473.astar: `-DSPEC_CPU_LP64`
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) `-opt-prefetch`
`-ansi-alias`

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

Continued on next page

Peak Optimization Flags (Continued)

401.bzip2 (continued):
-opt-prefetch -ansi-alias

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc
-opt-malloc-options=3 -auto-ilp32

429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel
-opt-prefetch -auto-p32

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1)
-prof-use(pass 2) -par-num-threads=1(pass 1) -ansi-alias

456.hmmer: basepeak = yes

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

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)
-opt-ra-region-strategy=block -ansi-alias
-Wl,-z,muldefs -L/sh -lsmartheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-auto-p32 -Wl,-z,muldefs -L/sh -lsmartheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-ansi-alias -Wl,-z,muldefs -L/sh -lsmartheap

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/Dell-Platform-Settings-V1.2-revD.20151006.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/Dell-Platform-Settings-V1.2-revD.20151006.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 Thu Nov 10 19:03:21 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 20 September 2016.