



SPEC® CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECint®2006 = 59.4

PowerEdge R740 (Intel Xeon Silver 4116, 2.10 GHz)

SPECint_base2006 = 56.9

CPU2006 license: 55

Test date: Jun-2017

Test sponsor: Dell Inc.

Hardware Availability: Jul-2017

Tested by: Dell Inc.

Software Availability: Nov-2016



Hardware

CPU Name: Intel Xeon Silver 4116
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
 CPU MHz: 2100
 FPU: Integrated
 CPU(s) enabled: 24 cores, 2 chips, 12 cores/chip, 2 threads/core
 CPU(s) orderable: 1,2 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 1 MB I+D on chip per core
 L3 Cache: 16.5 MB I+D on chip per chip
 Other Cache: None
 Memory: 384 GB (12 x 32 GB 2Rx8 PC4-2400T-R)
 Disk Subsystem: 1 x 960 GB SATA SSD
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 12 SP2 (x86_64) 4.4.21-69-default
 Compiler: C/C++: Version 17.0.3.191 of Intel C/C++ Compiler 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 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECint2006 = 59.4

PowerEdge R740 (Intel Xeon Silver 4116, 2.10 GHz)

SPECint_base2006 = 56.9

CPU2006 license: 55

Test date: Jun-2017

Test sponsor: Dell Inc.

Hardware Availability: Jul-2017

Tested by: Dell Inc.

Software Availability: Nov-2016

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	260	37.5	259	37.7	260	37.5	228	42.9	226	43.2	227	43.1
401.bzip2	413	23.3	414	23.3	415	23.2	411	23.5	411	23.5	411	23.5
403.gcc	294	27.3	294	27.4	295	27.3	290	27.7	292	27.5	294	27.4
429.mcf	141	64.8	142	64.2	142	64.2	143	63.9	141	64.8	140	65.3
445.gobmk	396	26.5	395	26.5	396	26.5	387	27.1	386	27.1	387	27.1
456.hmmer	119	78.7	118	79.0	118	79.0	119	78.7	118	79.0	118	79.0
458.sjeng	403	30.0	402	30.1	402	30.1	394	30.7	394	30.7	394	30.7
462.libquantum	4.08	5080	3.97	5220	3.99	5200	4.08	5080	3.97	5220	3.99	5200
464.h264ref	396	55.9	395	56.1	401	55.2	396	55.9	395	56.1	401	55.2
471.omnetpp	279	22.4	286	21.8	280	22.3	231	27.1	230	27.1	230	27.1
473.astar	233	30.1	236	29.8	235	29.9	234	30.0	236	29.8	235	29.9
483.xalancbmk	113	61.2	112	61.6	113	61.1	99.7	69.2	99.6	69.3	99.9	69.1

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"

Platform Notes

BIOS settings:
 Sub NUMA Cluster disabled
 Virtualization Technology disabled
 System Profile set to Custom
 CPU Performance set to Maximum Performance
 C States set to Autonomous
 C1E disabled
 Energy Efficient Turbo disabled
 Uncore Frequency set to Dynamic
 Energy Efficiency Policy set to Performance
 Memory Patrol Scrub disabled
 Logical Processor enabled
 CPU Interconnect Bus Link Power Management disabled
 PCI ASPM L1 Link Power Management disabled
 Sysinfo program /root/cpu2006-1.2_ic17u3/config/sysinfo.rev6993
 Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
 running on linux-xp0h Tue Jun 6 04:40:15 2017
 Continued on next page



SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECint2006 = 59.4

PowerEdge R740 (Intel Xeon Silver 4116, 2.10 GHz)

SPECint_base2006 = 56.9

CPU2006 license: 55

Test date: Jun-2017

Test sponsor: Dell Inc.

Hardware Availability: Jul-2017

Tested by: Dell Inc.

Software Availability: Nov-2016

Platform Notes (Continued)

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) Silver 4116 CPU @ 2.10GHz
 2 "physical id"s (chips)
 48 "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      : 12
  siblings       : 24
  physical 0:    cores 0 1 2 3 4 5 8 9 10 11 12 13
  physical 1:    cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size      : 16896 KB
```

From /proc/meminfo

```
MemTotal:      394867844 kB
HugePages_Total: 0
Hugepagesize:   2048 kB
```

From /etc/*release* /etc/*version*

```
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 2
# 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-SP2"
VERSION_ID="12.2"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp2"
```

uname -a:

```
Linux linux-xp0h 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016
(9464f67) x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Jun 4 21:57

SPEC is set to: /root/cpu2006-1.2_ic17u3

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2        xfs   930G  8.3G  921G   1% /
```

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program
Continued on next page



SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECint2006 = 59.4

PowerEdge R740 (Intel Xeon Silver 4116, 2.10 GHz)

SPECint_base2006 = 56.9

CPU2006 license: 55

Test date: Jun-2017

Test sponsor: Dell Inc.

Hardware Availability: Jul-2017

Tested by: Dell Inc.

Software Availability: Nov-2016

Platform Notes (Continued)

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. 1.0.2 05/31/2017

Memory:

12x 002C00B3002C 36ASF4G72PZ-2G3B1 32 GB 2 rank 2400 MHz

4x Not Specified Not Specified

(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_ic17u3/lib/ia32:/root/cpu2006-1.2_ic17u3/lib/intel64:/root/cpu2006-1.2_ic17u3/sh10.2"

OMP_NUM_THREADS = "24"

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

Transparent Huge Pages enabled by default.

Filesystem page cache cleared with:

shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run

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.hmmmer: -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



SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECint2006 = 59.4

PowerEdge R740 (Intel Xeon Silver 4116, 2.10 GHz)

SPECint_base2006 = 56.9

CPU2006 license: 55

Test date: Jun-2017

Test sponsor: Dell Inc.

Hardware Availability: Jul-2017

Tested by: Dell Inc.

Software Availability: Nov-2016

Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch
-auto-p32

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32
-Wl,-z,muldefs -L/sh10.2 -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_2017/linux/lib/ia32

445.gobmk: icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32

C++ benchmarks (except as noted below):

icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32

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



SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECint2006 = 59.4

PowerEdge R740 (Intel Xeon Silver 4116, 2.10 GHz)

SPECint_base2006 = 56.9

CPU2006 license: 55

Test date: Jun-2017

Test sponsor: Dell Inc.

Hardware Availability: Jul-2017

Tested by: Dell Inc.

Software Availability: Nov-2016

Peak Optimization Flags

C benchmarks:

- 400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -qopt-prefetch
- 401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div -auto-ilp32 -qopt-prefetch
- 403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc
-qopt-malloc-options=3 -auto-ilp32
- 429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel
-qopt-prefetch -auto-p32
- 445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2)
- 456.hmmer: basepeak = yes
- 458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -unroll4
- 462.libquantum: basepeak = yes
- 464.h264ref: basepeak = yes

C++ benchmarks:

- 471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -qopt-ra-region-strategy=block
-Wl,-z,muldefs -L/sh10.2 -lsmarheap
- 473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-auto-p32 -Wl,-z,muldefs -L/sh10.2 -lsmarheap64
- 483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-Wl,-z,muldefs -L/sh10.2 -lsmarheap

Peak Other Flags

C benchmarks:

Continued on next page



SPEC CINT2006 Result

Copyright 2006-2017 Standard Performance Evaluation Corporation

Dell Inc.

SPECint2006 = 59.4

PowerEdge R740 (Intel Xeon Silver 4116, 2.10 GHz)

SPECint_base2006 = 56.9

CPU2006 license: 55

Test date: Jun-2017

Test sponsor: Dell Inc.

Hardware Availability: Jul-2017

Tested by: Dell Inc.

Software Availability: Nov-2016

Peak Other Flags (Continued)

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/Dell-Platform-Flags-PowerEdge14G-revC.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/Dell-Platform-Flags-PowerEdge14G-revC.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 Wed Aug 23 13:13:02 2017 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 22 August 2017.