



SPEC® CINT2006 Result

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Dell Inc.

SPECint®_rate2006 = 894

PowerEdge T620 (Intel Xeon E5-2690 v2, 3.00 GHz)

SPECint_rate_base2006 = 867

CPU2006 license: 55

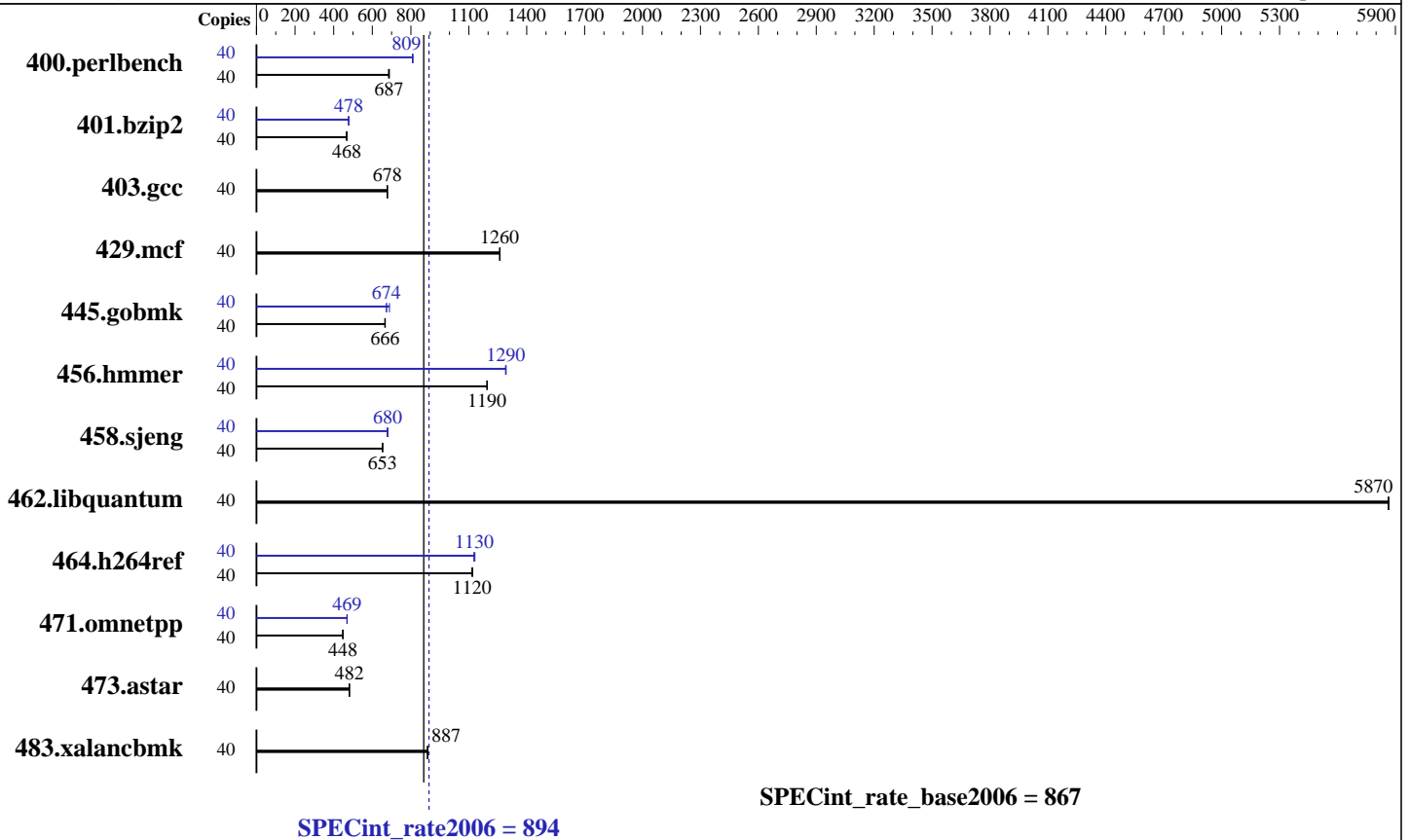
Test date: Aug-2013

Test sponsor: Dell Inc.

Hardware Availability: Sep-2013

Tested by: Dell Inc.

Software Availability: Sep-2013



Hardware

CPU Name: Intel Xeon E5-2690 v2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 3000
 FPU: Integrated
 CPU(s) enabled: 20 cores, 2 chips, 10 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: 256 KB I+D on chip per core
 L3 Cache: 25 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC)
 Disk Subsystem: 1 x 300 GB 15000 RPM SAS
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 11 SP3 (x86_64) 3.0.76-0.11-default
 Compiler: C/C++; Version 14.0.0.080 of Intel C++ Studio XE for Linux
 Auto Parallel: No
 File System: ext2
 System State: Run level 3 (multi-user)
 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 | 40 | 571 | 684 | <u>569</u> | <u>687</u> | 568 | 689 | 40 | <u>483</u> | <u>809</u> | 484 | 808 | 482 | 811 |
| 401.bzip2 | 40 | <u>824</u> | <u>468</u> | 828 | 466 | 824 | 468 | 40 | 810 | 476 | 807 | 478 | <u>807</u> | <u>478</u> |
| 403.gcc | 40 | <u>475</u> | <u>678</u> | 476 | 677 | 474 | 679 | 40 | <u>475</u> | <u>678</u> | 476 | 677 | 474 | 679 |
| 429.mcf | 40 | 289 | 1260 | <u>290</u> | <u>1260</u> | 290 | 1260 | 40 | 289 | 1260 | <u>290</u> | <u>1260</u> | 290 | 1260 |
| 445.gobmk | 40 | 631 | 665 | 629 | 667 | <u>630</u> | <u>666</u> | 40 | 623 | 674 | 609 | 689 | <u>623</u> | <u>674</u> |
| 456.hammer | 40 | 313 | 1190 | <u>312</u> | <u>1190</u> | 312 | 1200 | 40 | 289 | 1290 | 289 | 1290 | <u>289</u> | <u>1290</u> |
| 458.sjeng | 40 | 742 | 653 | 739 | 655 | <u>741</u> | <u>653</u> | 40 | 715 | 677 | <u>712</u> | <u>680</u> | 711 | 681 |
| 462.libquantum | 40 | 141 | 5860 | 141 | 5870 | <u>141</u> | <u>5870</u> | 40 | 141 | 5860 | 141 | 5870 | <u>141</u> | <u>5870</u> |
| 464.h264ref | 40 | <u>792</u> | <u>1120</u> | 790 | 1120 | 793 | 1120 | 40 | 786 | 1130 | 782 | 1130 | <u>785</u> | <u>1130</u> |
| 471.omnetpp | 40 | 557 | 449 | 560 | 446 | <u>558</u> | <u>448</u> | 40 | 532 | 470 | <u>533</u> | <u>469</u> | 533 | 469 |
| 473.astar | 40 | <u>583</u> | <u>482</u> | 582 | 482 | 585 | 480 | 40 | <u>583</u> | <u>482</u> | 582 | 482 | 585 | 480 |
| 483.xalancbmk | 40 | 311 | 887 | <u>311</u> | <u>887</u> | 312 | 885 | 40 | 311 | 887 | <u>311</u> | <u>887</u> | 312 | 885 |

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:
Virtualization Technology disabled
Execute Disable disabled
Logical Processor enabled
System Profile set to Performance
Sysinfo program /root/cpu2006.1.2.ic13/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on linux Tue Aug 20 18:18:21 2013

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 E5-2690 v2 @ 3.00GHz
2 "physical id"s (chips)
40 "processors"

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Platform Notes (Continued)

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 : 10
siblings  : 20
physical 0: cores 0 1 2 3 4 8 9 10 11 12
physical 1: cores 0 1 2 3 4 8 9 10 11 12
cache size : 25600 KB
```

From /proc/meminfo

```
MemTotal:      264601764 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 = 3
```

uname -a:

```
Linux linux 3.0.76-0.11-default #1 SMP Fri Jun 14 08:21:43 UTC 2013 (ccab990)
x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Aug 20 18:00 last=5

SPEC is set to: /root/cpu2006.1.2.ic13

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext2  267G  130G  137G  49% /
```

Additional information from dmidecode:

BIOS Dell Inc. 2.0.18 08/10/2013

Memory:

```
2x 00AD00B300AD HMT42GR7MFR4C-RD 16 GB 1866 MHz
8x 00AD04B300AD HMT42GR7AFR4C-RD 16 GB 1866 MHz
6x 00CE00B300CE M393B2G70CB0-CMA 16 GB 1866 MHz
```

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:

```
LD_LIBRARY_PATH = "/root/cpu2006.1.2.ic13/libs/32:/root/cpu2006.1.2.ic13/libs/64:/root/cpu2006.1.2.ic13/sh"
```

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5

Transparent Huge Pages enabled with:

```
echo always > /sys/kernel/mm/transparent_hugepage/enabled
```

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General Notes (Continued)

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

C++ benchmarks:
icpc -m32

Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32
462.libquantum: -DSPEC_CPU_LINUX
483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3

C++ benchmarks:
-xSSE4.2 -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

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`

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: `-xSSE4.2(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: `-xSSE4.2(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: `basepeak = yes`

429.mcf: `basepeak = yes`

445.gobmk: `-xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -ansi-alias -opt-mem-layout-trans=3`

456.hmmer: `-xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32`

458.sjeng: `-xSSE4.2(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`

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Peak Optimization Flags (Continued)

464.h264ref: -xSSE4.2(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: -xSSE4.2(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/Intel-ic14.0-official-linux64.20140128.html>
<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revB.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml>
<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revB.xml>

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

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