



# SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECint®2006 = 34.4

PowerEdge M910 (Intel Xeon E7-2860, 2.26 GHz)

SPECint\_base2006 = 31.8

CPU2006 license: 55

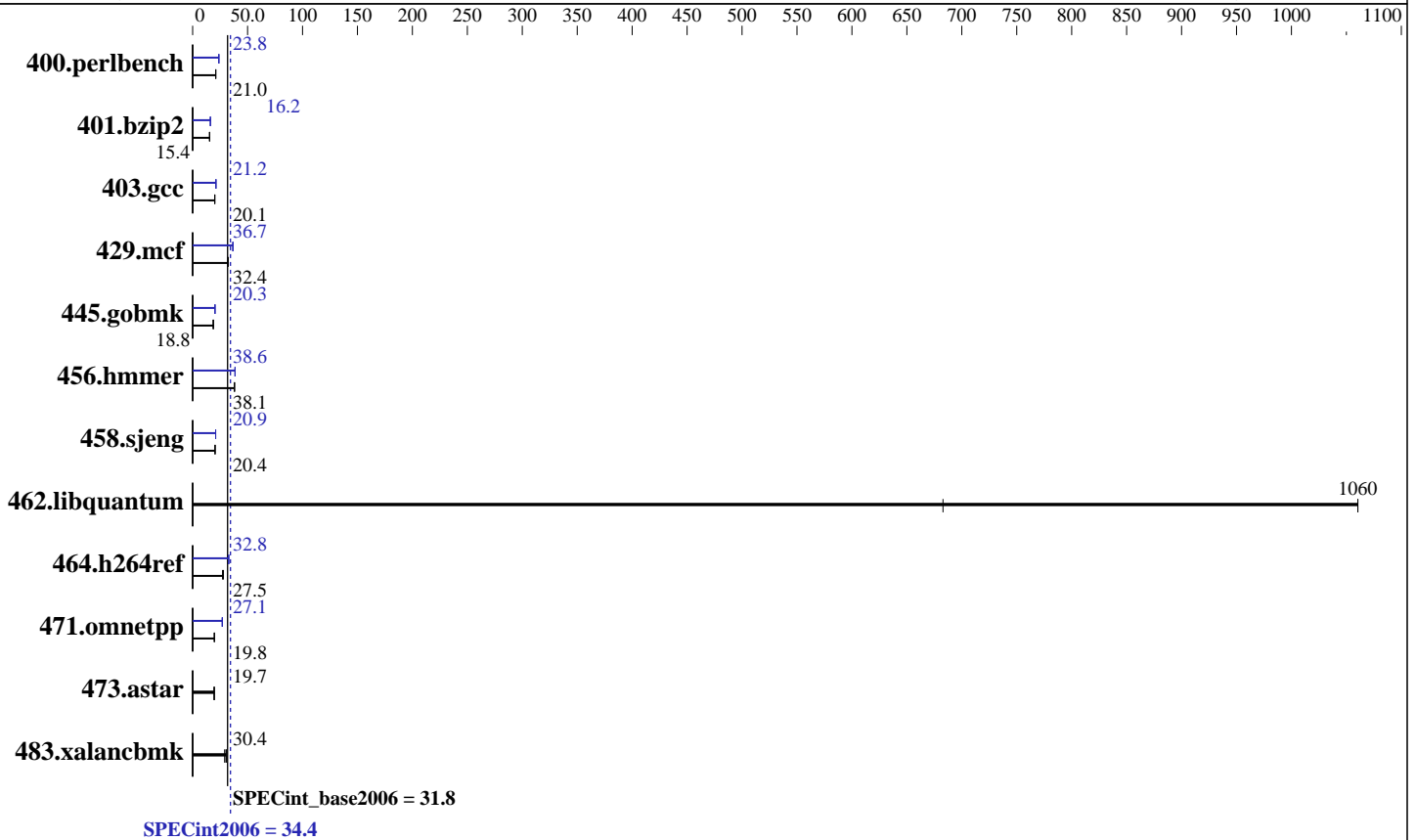
Test date: May-2011

Test sponsor: Dell Inc.

Hardware Availability: Apr-2011

Tested by: Dell Inc.

Software Availability: Jan-2011



## Hardware

CPU Name: Intel Xeon E7-2860  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.66 GHz  
 CPU MHz: 2267  
 FPU: Integrated  
 CPU(s) enabled: 20 cores, 2 chips, 10 cores/chip  
 CPU(s) orderable: 2,4 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: 24 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (32 x 8 GB 4Rx8 PC3L-8500R-7, ECC)  
 Disk Subsystem: 1 x 146 GB 15000 RPM SAS  
 Other Hardware: None

## Software

Operating System: SUSE Linux Enterprise Server 11 SP1 (x86\_64), Kernel 2.6.32.12-0.7-default  
 Compiler: Intel C++ Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.1.116 Build 20101116  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V9.01



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	466	21.0	<b><u>465</u></b>	<b><u>21.0</u></b>	464	21.1	410	23.8	409	23.9	<b><u>410</u></b>	<b><u>23.8</u></b>
401.bzip2	625	15.4	<b><u>626</u></b>	<b><u>15.4</u></b>	626	15.4	<b><u>597</u></b>	<b><u>16.2</u></b>	596	16.2	598	16.1
403.gcc	400	20.1	399	20.2	<b><u>400</u></b>	<b><u>20.1</u></b>	380	21.2	<b><u>380</u></b>	<b><u>21.2</u></b>	381	21.2
429.mcf	281	32.5	<b><u>282</u></b>	<b><u>32.4</u></b>	282	32.4	248	36.7	<b><u>249</u></b>	<b><u>36.7</u></b>	250	36.5
445.gobmk	<b><u>557</u></b>	<b><u>18.8</u></b>	564	18.6	553	19.0	516	20.3	516	20.3	<b><u>516</u></b>	<b><u>20.3</u></b>
456.hmmr	245	38.1	<b><u>245</u></b>	<b><u>38.1</u></b>	245	38.1	<b><u>242</u></b>	<b><u>38.6</u></b>	241	38.7	242	38.6
458.sjeng	<b><u>593</u></b>	<b><u>20.4</u></b>	594	20.4	593	20.4	577	21.0	578	20.9	<b><u>578</u></b>	<b><u>20.9</u></b>
462.libquantum	30.3	683	19.5	1060	<b><u>19.5</u></b>	<b><u>1060</u></b>	30.3	683	19.5	1060	<b><u>19.5</u></b>	<b><u>1060</u></b>
464.h264ref	<b><u>804</u></b>	<b><u>27.5</u></b>	812	27.2	789	28.0	674	32.8	<b><u>675</u></b>	<b><u>32.8</u></b>	675	32.8
471.omnetpp	318	19.7	314	19.9	<b><u>316</u></b>	<b><u>19.8</u></b>	<b><u>231</u></b>	<b><u>27.1</u></b>	231	27.1	233	26.8
473.astar	361	19.4	<b><u>357</u></b>	<b><u>19.7</u></b>	355	19.8	361	19.4	<b><u>357</u></b>	<b><u>19.7</u></b>	355	19.8
483.xalancbmk	226	30.6	<b><u>227</u></b>	<b><u>30.4</u></b>	237	29.1	226	30.6	<b><u>227</u></b>	<b><u>30.4</u></b>	237	29.1

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

## Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
echo 900> /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

## Platform Notes

BIOS Settings:  
Power Management = Maximum Performance (Default = Active Power Controller)  
Logical Processor = Disabled (Default = Enabled)

## General Notes

OMP\_NUM\_THREADS set to number of cores  
Binaries were compiled on RHEL5.5

## Base Compiler Invocation

C benchmarks:  
icc -m64  
  
C++ benchmarks:  
icpc -m64



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## 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:

```

-xSSE4.2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

```

C++ benchmarks:

```

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/smartheap -lsmartheap64
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

```

## Base Other Flags

C benchmarks:

```

403.gcc: -Dalloca=_alloca

```

## Peak Compiler Invocation

C benchmarks (except as noted below):

```

icc -m64

400.perlbench: icc -m32

429.mcf: icc -m32

445.gobmk: icc -m32

464.h264ref: icc -m32

```

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## Peak Compiler Invocation (Continued)

C++ benchmarks (except as noted below):

icpc -m64

471.omnetpp: icpc -m32

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
 401.bzip2: -DSPEC\_CPU\_LP64  
 403.gcc: -DSPEC\_CPU\_LP64  
 456.hmmer: -DSPEC\_CPU\_LP64  
 458.sjeng: -DSPEC\_CPU\_LP64  
 462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
 473.astar: -DSPEC\_CPU\_LP64  
 483.xalancbmk: -DSPEC\_CPU\_LP64 -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)  
 -opt-prefetch -ansi-alias  
 -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

401.bzip2: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2)  
 -O3(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32  
 -opt-prefetch -ansi-alias

403.gcc: -xSSE4.2 -ipo -O3 -no-prec-div -inline-calloc  
 -opt-malloc-options=3 -auto-ilp32  
 -B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

429.mcf: -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 -ansi-alias  
 -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
 -auto-ilp32 -ansi-alias  
 -B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
 -ansi-alias  
 -B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

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## Peak Optimization Flags (Continued)

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

462.libquantum: basepeak = yes

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  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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)  
-opt-ra-region-strategy=block -ansi-alias -Wl,-z,muldefs  
-L/smartheap -lsmartheap  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

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-ic12.0-linux64-revB.html>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110524.00.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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