



# SPEC<sup>®</sup> CINT2006 Result

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Dell Inc.

SPECint<sup>®</sup>2006 = 45.9

PowerEdge M620 (Intel Xeon E5-2637, 3.00 GHz)

SPECint\_base2006 = 43.4

CPU2006 license: 55

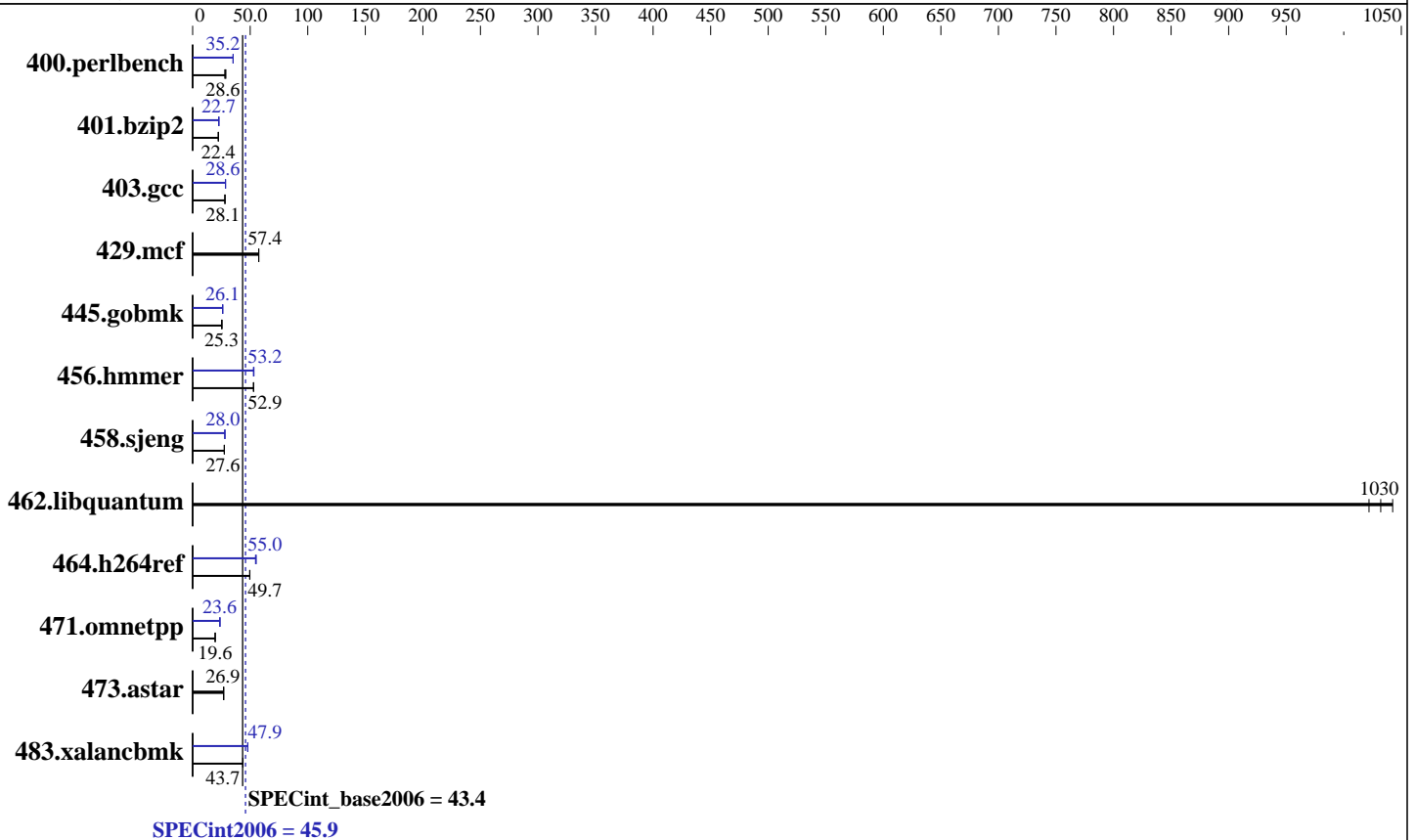
Test date: Feb-2012

Test sponsor: Dell Inc.

Hardware Availability: Mar-2012

Tested by: Dell Inc.

Software Availability: Feb-2012



## Hardware

CPU Name: Intel Xeon E5-2637  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 3000  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 2 chips, 2 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: 5 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)  
 Disk Subsystem: 1 x 500 GB 7200 RPM SATA  
 Other Hardware: None

## Software

Operating System: SUSE Linux Enterprise Server 11 SP2 (x86\_64) 3.0.13-0.9-default  
 Compiler: C/C++; Version 12.1.0.225 of Intel C++ Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (add definition here)  
 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	339	28.8	<b><u>342</u></b>	<b><u>28.6</u></b>	350	27.9	278	35.1	<b><u>278</u></b>	<b><u>35.2</u></b>	278	35.2
401.bzip2	435	22.2	430	22.4	<b><u>432</u></b>	<b><u>22.4</u></b>	422	22.9	<b><u>425</u></b>	<b><u>22.7</u></b>	426	22.6
403.gcc	286	28.1	<b><u>286</u></b>	<b><u>28.1</u></b>	288	28.0	282	28.6	282	28.5	<b><u>282</u></b>	<b><u>28.6</u></b>
429.mcf	159	57.4	159	57.4	<b><u>159</u></b>	<b><u>57.4</u></b>	159	57.4	159	57.4	<b><u>159</u></b>	<b><u>57.4</u></b>
445.gobmk	414	25.3	<b><u>414</u></b>	<b><u>25.3</u></b>	412	25.5	<b><u>402</u></b>	<b><u>26.1</u></b>	402	26.1	402	26.1
456.hmmer	176	52.9	176	52.9	<b><u>176</u></b>	<b><u>52.9</u></b>	<b><u>175</u></b>	<b><u>53.2</u></b>	177	52.8	175	53.2
458.sjeng	<b><u>439</u></b>	<b><u>27.6</u></b>	442	27.4	439	27.6	431	28.0	<b><u>432</u></b>	<b><u>28.0</u></b>	433	27.9
462.libquantum	19.9	1040	<b><u>20.1</u></b>	<b><u>1030</u></b>	20.3	1020	19.9	1040	<b><u>20.1</u></b>	<b><u>1030</u></b>	20.3	1020
464.h264ref	445	49.7	447	49.5	<b><u>446</u></b>	<b><u>49.7</u></b>	405	54.6	401	55.2	<b><u>402</u></b>	<b><u>55.0</u></b>
471.omnetpp	319	19.6	<b><u>319</u></b>	<b><u>19.6</u></b>	320	19.6	265	23.6	<b><u>264</u></b>	<b><u>23.6</u></b>	263	23.8
473.astar	261	26.9	261	26.9	<b><u>261</u></b>	<b><u>26.9</u></b>	261	26.9	261	26.9	<b><u>261</u></b>	<b><u>26.9</u></b>
483.xalancbmk	158	43.8	<b><u>158</u></b>	<b><u>43.7</u></b>	158	43.6	144	47.9	<b><u>144</u></b>	<b><u>47.9</u></b>	144	47.9

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

## Operating System Notes

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

## Platform Notes

```

System Profile set to Custom
CPU Power Management set to Maximum Performance
Memory Frequency set to Maximum Performance
Turbo Boost set to Enabled
C States/C1E set to Enabled
Sysinfo program /root/CPU2006-1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on linux-8itg Wed Feb 22 18:20:44 2012

```

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 E5-2637 0 @ 3.00GHz
 2 "physical id"s (chips)
 8 "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 : 2
siblings  : 4
physical 0: cores 0 1

```

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## Platform Notes (Continued)

physical 1: cores 0 1  
cache size : 5120 KB

```
From /proc/meminfo
MemTotal:      132122692 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 = 2
```

```
uname -a:
Linux linux-8itg 3.0.13-0.9-default #1 SMP Mon Jan 16 17:33:03 UTC 2012
(54ddfaf) x86_64 x86_64 x86_64 GNU/Linux
```

```
run-level 3 Feb 22 18:20 last=S
```

```
SPEC is set to: /root/CPU2006-1.2
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdal       ext3  455G   59G  373G  14% /
```

Additional information from dmidecode:

(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"
OMP_NUM_THREADS = "4"
```

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
Filesystem page cache cleared with:
echo 1> /proc/sys/vm/drop_caches
```

## Base Compiler Invocation

C benchmarks:  
icc -m64

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## Base Compiler Invocation (Continued)

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:  
-xAVX -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32  
C++ benchmarks:  
-xAVX -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -Wl,-z,muldefs  
-L/smartheap -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  
445.gobmk: icc -m32

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## Peak Compiler Invocation (Continued)

464.h264ref: icc -m32

C++ benchmarks (except as noted below):

icpc -m32

473.astar: icpc -m64

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32

401.bzip2: -DSPEC\_CPU\_LP64

403.gcc: -DSPEC\_CPU\_LP64

429.mcf: -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\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -xAVX(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

401.bzip2: -xAVX(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: -xAVX -ipo -O3 -no-prec-div -inline-calloc  
-opt-malloc-options=3 -auto-ilp32

429.mcf: basepeak = yes

445.gobmk: -xAVX(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias

456.hmmer: -xAVX -ipo -O3 -no-prec-div -unroll2 -auto-ilp32  
-ansi-alias

458.sjeng: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4

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## Peak Optimization Flags (Continued)

462.libquantum: basepeak = yes

464.h264ref: -xAVX(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: -xAVX(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

473.astar: basepeak = yes

483.xalancbmk: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias  
-Wl,-z,muldefs -L/smartheap -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-ic12.1-official-linux64.20111122.html>  
<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120328.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>  
<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120328.xml>

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

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