



# SPEC® CINT2006 Result

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Dell Inc.

SPECint®2006 = 47.7

PowerEdge T710 (Intel Xeon X5687, 3.60 GHz)

SPECint\_base2006 = 45.1

CPU2006 license: 55

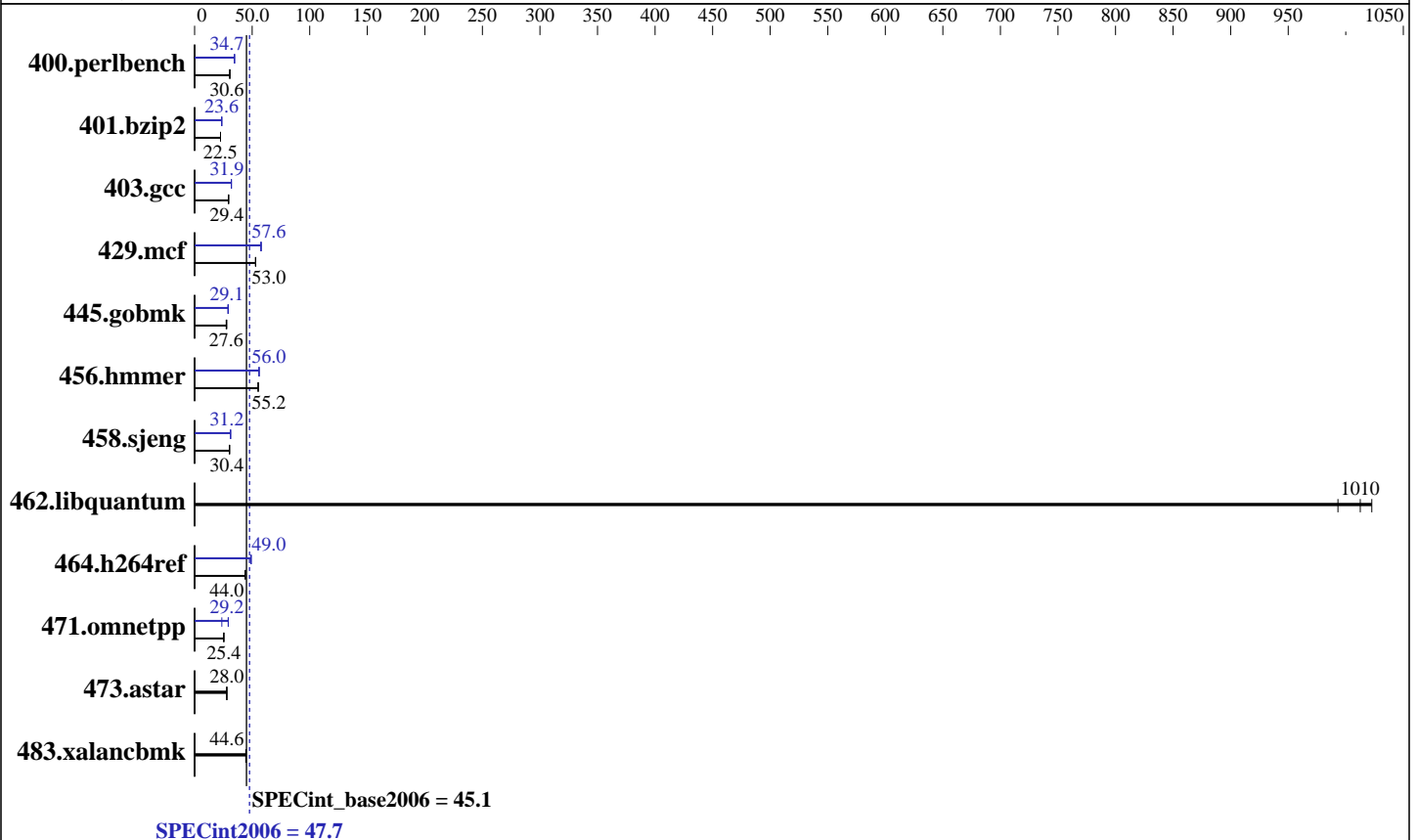
Test date: Mar-2011

Test sponsor: Dell Inc.

Hardware Availability: Feb-2011

Tested by: Dell Inc.

Software Availability: Jan-2011



## Hardware

CPU Name: Intel Xeon X5687  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.86 GHz  
 CPU MHz: 3600  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 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: 12 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 48 GB (12 x 4 GB 2Rx4 PC3-10600R-9, 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	319	30.6	<b><u>319</u></b>	<b><u>30.6</u></b>	319	30.6	<b><u>282</u></b>	<b><u>34.7</u></b>	282	34.6	<b><u>282</u></b>	<b><u>34.7</u></b>
401.bzip2	<b><u>429</u></b>	<b><u>22.5</u></b>	429	22.5	429	22.5	409	23.6	410	23.6	<b><u>409</u></b>	<b><u>23.6</u></b>
403.gcc	<b><u>273</u></b>	<b><u>29.4</u></b>	271	29.7	274	29.4	<b><u>252</u></b>	<b><u>31.9</u></b>	252	32.0	252	31.9
429.mcf	172	53.0	<b><u>172</u></b>	<b><u>53.0</u></b>	172	52.9	<b><u>158</u></b>	<b><u>57.6</u></b>	157	58.0	159	57.5
445.gobmk	<b><u>380</u></b>	<b><u>27.6</u></b>	382	27.5	375	28.0	<b><u>360</u></b>	<b><u>29.1</u></b>	361	29.1	359	29.2
456.hammer	169	55.2	<b><u>169</u></b>	<b><u>55.2</u></b>	169	55.2	167	55.9	<b><u>167</u></b>	<b><u>56.0</u></b>	166	56.1
458.sjeng	<b><u>399</u></b>	<b><u>30.4</u></b>	399	30.4	399	30.3	<b><u>387</u></b>	<b><u>31.2</u></b>	387	31.2	387	31.2
462.libquantum	20.3	1020	<b><u>20.5</u></b>	<b><u>1010</u></b>	20.9	993	20.3	1020	<b><u>20.5</u></b>	<b><u>1010</u></b>	20.9	993
464.h264ref	<b><u>503</u></b>	<b><u>44.0</u></b>	504	43.9	502	44.1	451	49.1	451	49.0	<b><u>451</u></b>	<b><u>49.0</u></b>
471.omnetpp	246	25.4	<b><u>246</u></b>	<b><u>25.4</u></b>	247	25.3	214	29.2	264	23.6	<b><u>214</u></b>	<b><u>29.2</u></b>
473.astar	251	28.0	251	28.0	<b><u>251</u></b>	<b><u>28.0</u></b>	251	28.0	251	28.0	<b><u>251</u></b>	<b><u>28.0</u></b>
483.xalancbmk	<b><u>155</u></b>	<b><u>44.6</u></b>	155	44.5	154	44.7	<b><u>155</u></b>	<b><u>44.6</u></b>	155	44.5	154	44.7

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)  
 Data Reuse = Disabled (Default = Enabled)  
 Logical Processor = Disabled (Default = Enabled)

## General Notes

OMP\_NUM\_THREADS set to number of cores  
 The Dell PowerEdge T710 and  
 the Bull NovaScale T860 F2 models are electronically equivalent.  
 The results have been measured on a Dell PowerEdge T710 model.  
 Binaries were compiled on RHEL5.5

## 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:  
-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

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## Peak Compiler Invocation (Continued)

429.mcf: icc -m32

445.gobmk: icc -m32

464.h264ref: icc -m32

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.hammer: -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

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## Peak Optimization Flags (Continued)

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

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.20110426.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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