



# SPEC® CINT2006 Result

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Dell Inc.

SPECint®\_rate2006 = 273

PowerEdge T610 (Intel Xeon X5647, 2.93 GHz)

SPECint\_rate\_base2006 = 253

CPU2006 license: 55

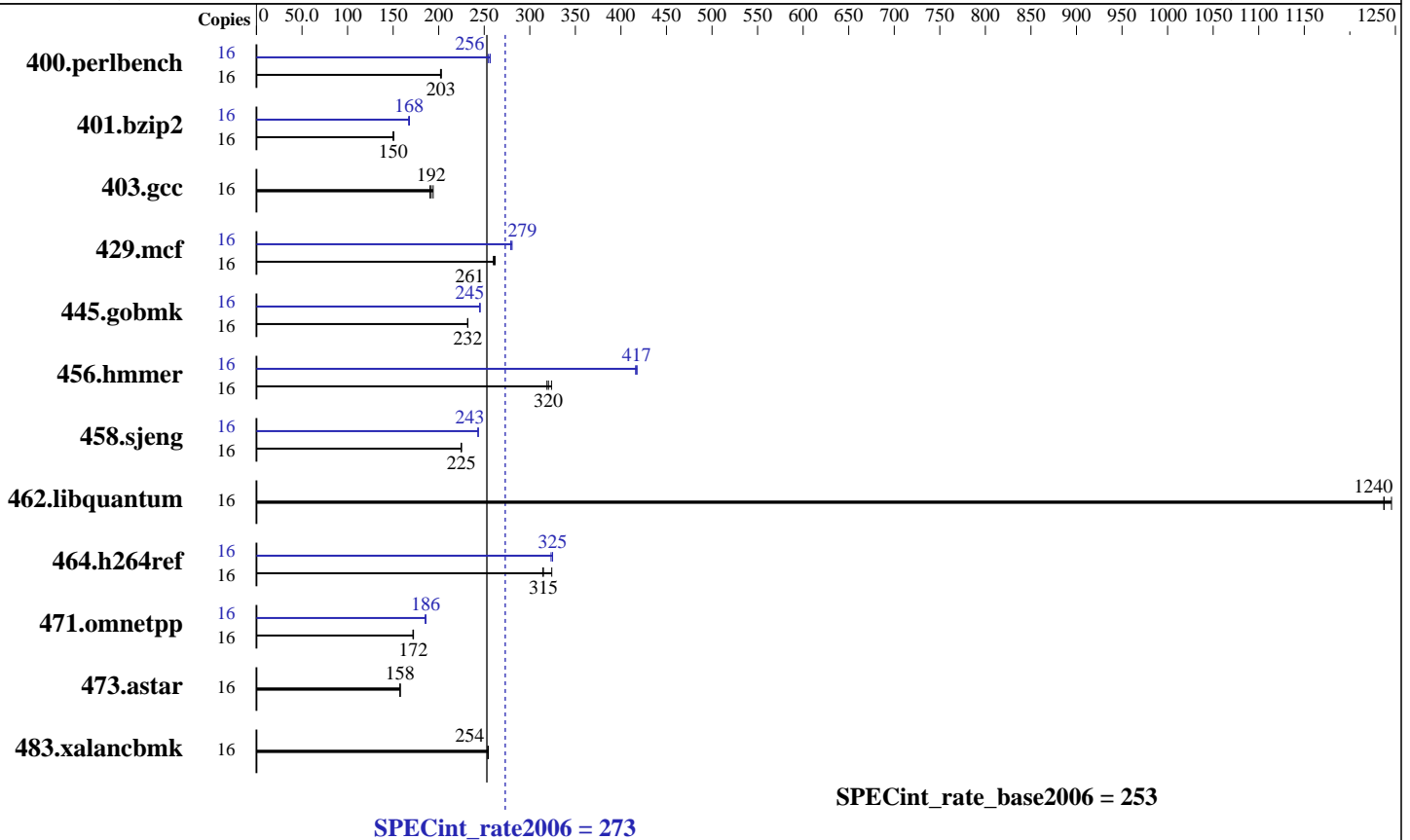
Test date: Jun-2011

Test sponsor: Dell Inc.

Hardware Availability: Feb-2011

Tested by: Dell Inc.

Software Availability: Jan-2011



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## Hardware

CPU Name: Intel Xeon X5647  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz  
 CPU MHz: 2933  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip, 2 threads/core  
 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, running at 1066 MHz)  
 Disk Subsystem: 2 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++ Compiler XE for applications running on IA-32 Version 12.0.1.116 Build 20101116  
 Auto Parallel: No  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V9.01



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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  | 16     | 774        | 202        | <u>772</u>  | <u>203</u>  | 770        | 203        | 16     | <u>610</u>  | <u>256</u> | 609        | 256         | 615        | 254        |
| 401.bzip2      | 16     | 1024       | 151        | <u>1028</u> | <u>150</u>  | 1029       | 150        | 16     | 920         | 168        | 924        | 167         | <u>920</u> | <u>168</u> |
| 403.gcc        | 16     | <u>672</u> | <u>192</u> | 664         | 194         | 676        | 190        | 16     | <u>672</u>  | <u>192</u> | 664        | 194         | 676        | 190        |
| 429.mcf        | 16     | 561        | 260        | 557         | 262         | <u>559</u> | <u>261</u> | 16     | 520         | 281        | <u>522</u> | <u>279</u>  | 523        | 279        |
| 445.gobmk      | 16     | 723        | 232        | <u>724</u>  | <u>232</u>  | 724        | 232        | 16     | <u>685</u>  | <u>245</u> | 684        | 245         | 685        | 245        |
| 456.hammer     | 16     | <u>466</u> | <u>320</u> | 461         | 324         | 468        | 319        | 16     | 357         | 418        | <u>358</u> | <u>417</u>  | 359        | 416        |
| 458.sjeng      | 16     | <u>861</u> | <u>225</u> | 861         | 225         | 862        | 225        | 16     | <u>796</u>  | <u>243</u> | 795        | 243         | 796        | 243        |
| 462.libquantum | 16     | 266        | 1250       | <u>268</u>  | <u>1240</u> | 268        | 1240       | 16     | 266         | 1250       | <u>268</u> | <u>1240</u> | 268        | 1240       |
| 464.h264ref    | 16     | 1092       | 324        | <u>1124</u> | <u>315</u>  | 1127       | 314        | 16     | <u>1090</u> | <u>325</u> | 1095       | 323         | 1089       | 325        |
| 471.omnetpp    | 16     | 582        | 172        | 580         | 172         | <u>581</u> | <u>172</u> | 16     | 540         | 185        | <u>539</u> | <u>186</u>  | 538        | 186        |
| 473.astar      | 16     | 712        | 158        | <u>713</u>  | <u>158</u>  | 713        | 158        | 16     | 712         | 158        | <u>713</u> | <u>158</u>  | 713        | 158        |
| 483.xalancbmk  | 16     | 435        | 254        | 434         | 255         | <u>434</u> | <u>254</u> | 16     | 435         | 254        | 434        | 255         | <u>434</u> | <u>254</u> |

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

## Submit Notes

The config file option 'submit' was used.  
numactl was used to bind copies to the cores

## 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 7200 > /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)

## General Notes

The Dell PowerEdge T610 and the Bull NovaScale T840 F2 models are electronically equivalent. The results have been measured on a Dell PowerEdge T610 model. Binaries were compiled on RHEL5.5



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

C++ benchmarks:

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

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m32

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

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## Peak Compiler Invocation (Continued)

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)  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

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  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

403.gcc: basepeak = yes

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)  
-ansi-alias -auto-ilp32

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)  
-ansi-alias -auto-ilp32

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

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

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## Peak Optimization Flags (Continued)

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/smartheap -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-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>

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

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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