



# SPEC® CINT2006 Result

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Dell Inc.

SPECint®\_rate2006 = 282

PowerEdge R910 (Intel Xeon E7540, 2.00 GHz)

SPECint\_rate\_base2006 = 267

CPU2006 license: 55

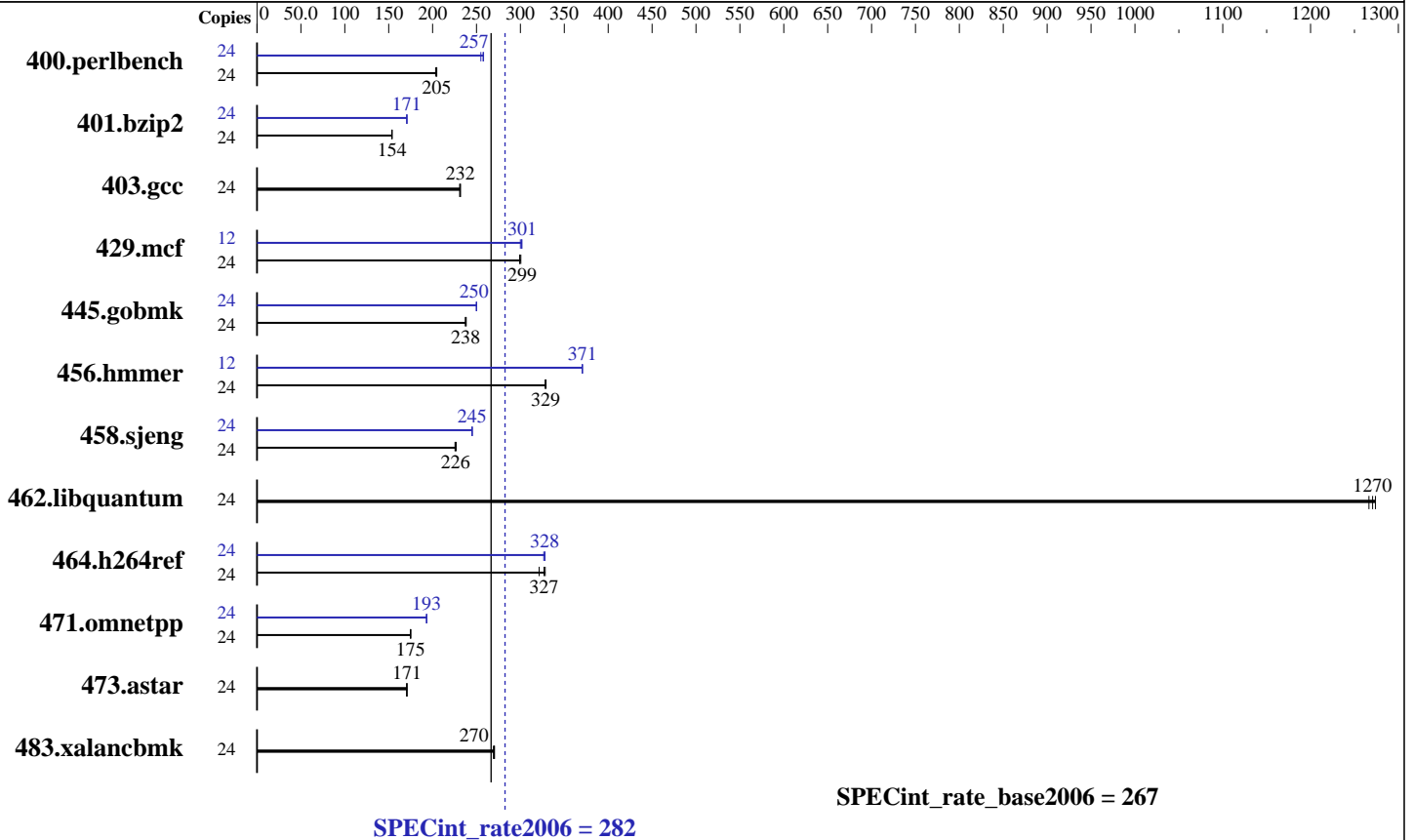
Test date: May-2011

Test sponsor: Dell Inc.

Hardware Availability: Jul-2011

Tested by: Dell Inc.

Software Availability: Jan-2011



## Hardware

CPU Name: Intel Xeon E7540  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.27 GHz  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core  
 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: 18 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (32 x 8 GB 4Rx8 PC3-8500R-7, ECC)  
 Disk Subsystem: 1 x 500 GB 7200 RPM SAS 6Gb  
 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  | 24     | 1153        | 203        | 1145        | 205         | <b>1146</b> | <b>205</b> | 24     | <u>911</u>  | <u>257</u> | 920         | 255         | 909         | 258        |
| 401.bzip2      | 24     | 1507        | 154        | <b>1507</b> | <b>154</b>  | 1506        | 154        | 24     | <b>1357</b> | <b>171</b> | 1357        | 171         | 1356        | 171        |
| 403.gcc        | 24     | <b>834</b>  | <b>232</b> | 837         | 231         | 834         | 232        | 24     | <b>834</b>  | <b>232</b> | 837         | 231         | 834         | 232        |
| 429.mcf        | 24     | 728         | 301        | 732         | 299         | <b>731</b>  | <b>299</b> | 12     | 365         | 300        | <b>363</b>  | <b>301</b>  | 363         | 302        |
| 445.gobmk      | 24     | <b>1060</b> | <b>238</b> | 1056        | 238         | 1061        | 237        | 24     | 1008        | 250        | <b>1007</b> | <b>250</b>  | 1006        | 250        |
| 456.hammer     | 24     | 680         | 329        | <b>681</b>  | <b>329</b>  | 682         | 328        | 12     | <b>302</b>  | <b>371</b> | 302         | 371         | 302         | 370        |
| 458.sjeng      | 24     | <b>1285</b> | <b>226</b> | 1288        | 226         | 1280        | 227        | 24     | 1186        | 245        | 1184        | 245         | <b>1185</b> | <b>245</b> |
| 462.libquantum | 24     | 390         | 1270       | <b>391</b>  | <b>1270</b> | 393         | 1270       | 24     | 390         | 1270       | <b>391</b>  | <b>1270</b> | 393         | 1270       |
| 464.h264ref    | 24     | 1653        | 321        | 1618        | 328         | <b>1624</b> | <b>327</b> | 24     | 1619        | 328        | <b>1621</b> | <b>328</b>  | 1626        | 327        |
| 471.omnetpp    | 24     | 856         | 175        | <b>858</b>  | <b>175</b>  | 858         | 175        | 24     | 776         | 193        | 777         | 193         | <b>776</b>  | <b>193</b> |
| 473.astar      | 24     | 986         | 171        | 989         | 170         | <b>986</b>  | <b>171</b> | 24     | 986         | 171        | 989         | 170         | <b>986</b>  | <b>171</b> |
| 483.xalancbmk  | 24     | 615         | 269        | <b>613</b>  | <b>270</b>  | 612         | 271        | 24     | 615         | 269        | <b>613</b>  | <b>270</b>  | 612         | 271        |

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 21600 > /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)

## General Notes

The Dell PowerEdge R910 and the Bull NovaScale R480 F2 models are electronically equivalent. The results have been measured on a Dell PowerEdge R910 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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