



# SPEC® CINT2006 Result

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Dell Inc.

SPECint®\_rate2006 = 327

PowerEdge R710 (Intel Xeon E5649, 2.53 GHz)

SPECint\_rate\_base2006 = 303

CPU2006 license: 55

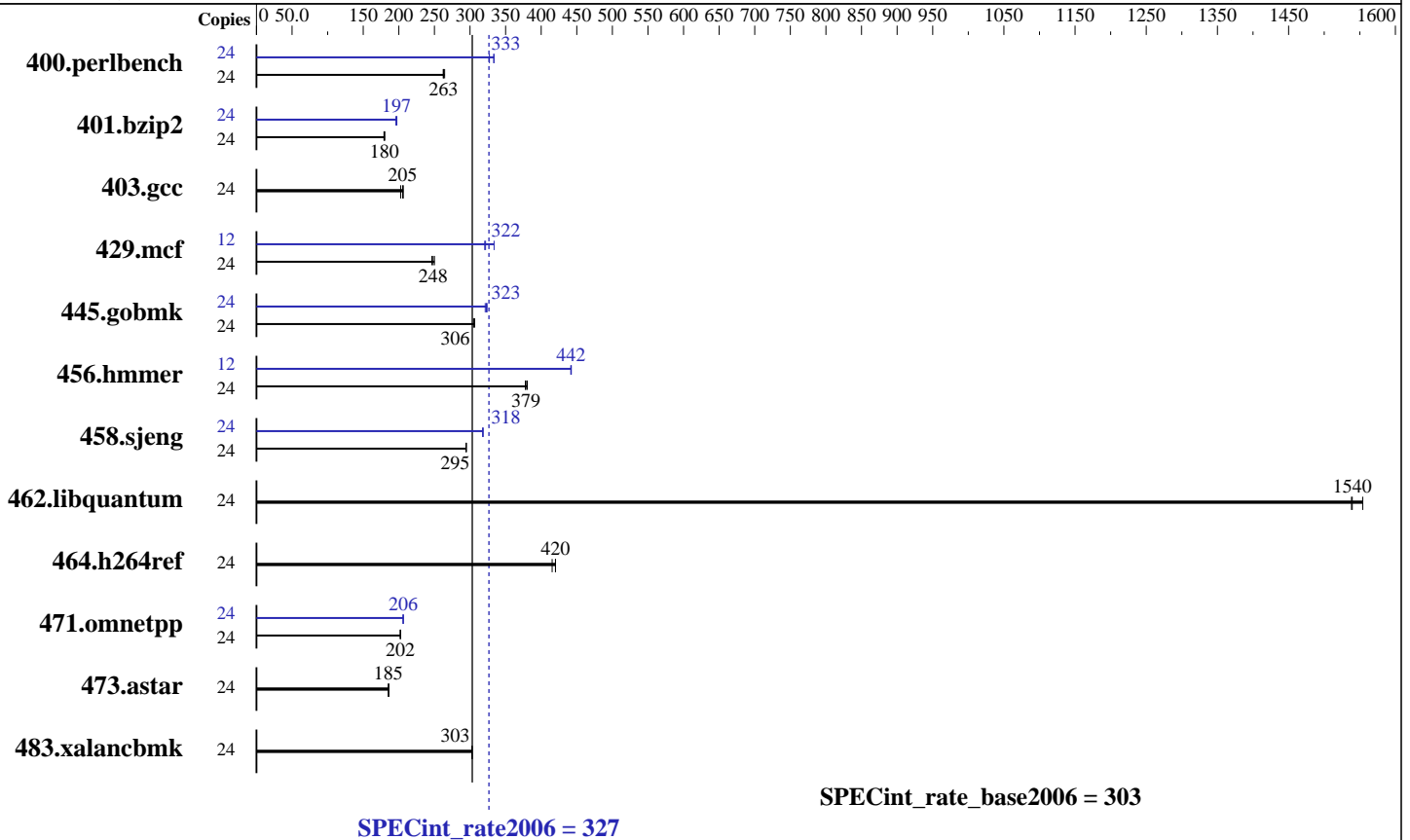
Test date: Mar-2011

Test sponsor: Dell Inc.

Hardware Availability: Feb-2011

Tested by: Dell Inc.

Software Availability: Jan-2010



### Hardware

CPU Name: Intel Xeon E5649  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.93 GHz  
 CPU MHz: 2533  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 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: 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: 146 GB 10000 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  | 24     | 894     | 262   | 887         | 264        | <b>892</b> | <b>263</b>  | 24     | 716         | 327        | 703         | 334        | <b>703</b> | <b>333</b>  |
| 401.bzip2      | 24     | 1293    | 179   | <b>1289</b> | <b>180</b> | 1285       | 180         | 24     | <b>1178</b> | <b>197</b> | 1174        | 197        | 1182       | 196         |
| 403.gcc        | 24     | 954     | 203   | 937         | 206        | <b>941</b> | <b>205</b>  | 24     | 954         | 203        | 937         | 206        | <b>941</b> | <b>205</b>  |
| 429.mcf        | 24     | 888     | 246   | 876         | 250        | <b>882</b> | <b>248</b>  | 12     | 341         | 321        | <b>340</b>  | <b>322</b> | 328        | 334         |
| 445.gobmk      | 24     | 826     | 305   | <b>823</b>  | <b>306</b> | 822        | 306         | 24     | 783         | 321        | 777         | 324        | <b>779</b> | <b>323</b>  |
| 456.hammer     | 24     | 589     | 380   | 593         | 378        | <b>591</b> | <b>379</b>  | 12     | <b>253</b>  | <b>442</b> | 253         | 442        | 254        | 442         |
| 458.sjeng      | 24     | 986     | 295   | 985         | 295        | <b>986</b> | <b>295</b>  | 24     | 912         | 318        | <b>913</b>  | <b>318</b> | 913        | 318         |
| 462.libquantum | 24     | 320     | 1550  | 323         | 1540       | <b>323</b> | <b>1540</b> | 24     | 320         | 1550       | 323         | 1540       | <b>323</b> | <b>1540</b> |
| 464.h264ref    | 24     | 1264    | 420   | <b>1265</b> | <b>420</b> | 1279       | 415         | 24     | 1264        | 420        | <b>1265</b> | <b>420</b> | 1279       | 415         |
| 471.omnetpp    | 24     | 743     | 202   | <b>742</b>  | <b>202</b> | 741        | 202         | 24     | 728         | 206        | <b>728</b>  | <b>206</b> | 727        | 206         |
| 473.astar      | 24     | 909     | 185   | <b>908</b>  | <b>185</b> | 906        | 186         | 24     | 909         | 185        | <b>908</b>  | <b>185</b> | 906        | 186         |
| 483.xalancbmk  | 24     | 547     | 303   | 547         | 303        | <b>547</b> | <b>303</b>  | 24     | 547         | 303        | 547         | 303        | <b>547</b> | <b>303</b>  |

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 10800 > /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 R710 and the Bull NovaScale R460 F2 models are electronically equivalent. The results have been measured on a Dell PowerEdge R710 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: basepeak = yes

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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.20110308.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.20110308.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).

Tested with SPEC CPU2006 v1.1.

Report generated on Wed Jul 23 16:04:16 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 29 March 2011.