



# SPEC® CINT2006 Result

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Dell Inc.

SPECint®2006 = 35.9

PowerEdge T620 (Intel Xeon E5-2609, 2.40 GHz)

SPECint\_base2006 = 34.2

CPU2006 license: 55

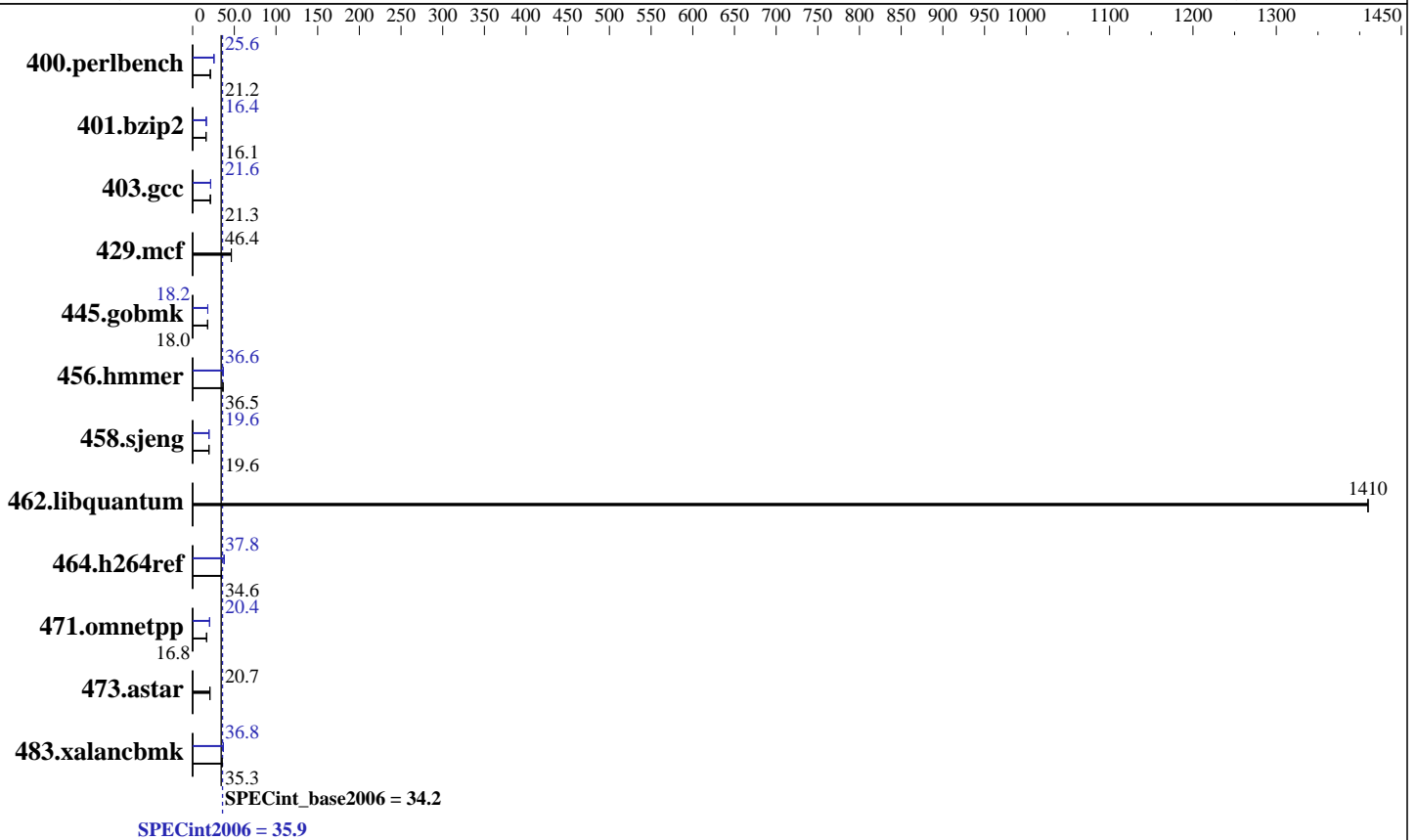
Test date: Feb-2012

Test sponsor: Dell Inc.

Hardware Availability: Mar-2012

Tested by: Dell Inc.

Software Availability: Feb-2012



## Hardware

CPU Name: Intel Xeon E5-2609  
 CPU Characteristics: 2400  
 CPU MHz: Integrated  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 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: 10 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1066 MHz)  
 Disk Subsystem: 1 x 250 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 (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  | 461        | 21.2        | <b>460</b> | <b>21.2</b> | 458         | 21.3        | 383        | 25.5        | <b>382</b> | <b>25.6</b> | 382         | 25.6        |
| 401.bzip2      | 600        | 16.1        | 602        | 16.0        | <b>601</b>  | <b>16.1</b> | <b>590</b> | <b>16.4</b> | 589        | 16.4        | 590         | 16.4        |
| 403.gcc        | 377        | 21.3        | 378        | 21.3        | <b>378</b>  | <b>21.3</b> | <b>372</b> | <b>21.6</b> | 372        | 21.6        | 373         | 21.6        |
| 429.mcf        | <b>197</b> | <b>46.4</b> | 196        | 46.5        | 197         | 46.4        | <b>197</b> | <b>46.4</b> | 196        | 46.5        | 197         | 46.4        |
| 445.gobmk      | 583        | 18.0        | <b>583</b> | <b>18.0</b> | 583         | 18.0        | <b>578</b> | <b>18.2</b> | 578        | 18.2        | 578         | 18.1        |
| 456.hammer     | <b>256</b> | <b>36.5</b> | 256        | 36.5        | 257         | 36.3        | <b>255</b> | <b>36.6</b> | 255        | 36.6        | 255         | 36.6        |
| 458.sjeng      | <b>618</b> | <b>19.6</b> | 619        | 19.6        | 618         | 19.6        | 617        | 19.6        | <b>617</b> | <b>19.6</b> | 617         | 19.6        |
| 462.libquantum | 14.7       | 1410        | 14.7       | 1410        | <b>14.7</b> | <b>1410</b> | 14.7       | 1410        | 14.7       | 1410        | <b>14.7</b> | <b>1410</b> |
| 464.h264ref    | <b>640</b> | <b>34.6</b> | 640        | 34.6        | 641         | 34.5        | <b>586</b> | <b>37.8</b> | 585        | 37.8        | 587         | 37.7        |
| 471.omnetpp    | <b>373</b> | <b>16.8</b> | 372        | 16.8        | 373         | 16.8        | 308        | 20.3        | 307        | 20.4        | <b>307</b>  | <b>20.4</b> |
| 473.astar      | 339        | 20.7        | 340        | 20.7        | <b>339</b>  | <b>20.7</b> | 339        | 20.7        | 340        | 20.7        | <b>339</b>  | <b>20.7</b> |
| 483.xalancbmk  | <b>196</b> | <b>35.3</b> | 195        | 35.3        | 196         | 35.2        | <b>188</b> | <b>36.8</b> | 188        | 36.8        | 188         | 36.8        |

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
C States/C1E set to Enabled
Sysinfo program /root/CPU2006-1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on SUT Tue Feb 14 00:57:57 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 E5-2609 0 @ 2.40GHz
 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 : 4
siblings : 4
physical 0: cores 0 1 2 3
physical 1: cores 0 1 2 3

```

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## Platform Notes (Continued)

cache size : 10240 KB

From /proc/meminfo

MemTotal: 132089856 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 SUT 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 14 00:57 last=S

SPEC is set to: /root/CPU2006-1.2

Filesystem Type Size Used Avail Use% Mounted on  
/dev/sdal ext3 226G 69G 146G 32% /

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 = "8"

The Dell PowerEdge T620 and

the Bull NovaScale T840 F3 models are electronically equivalent.

The results have been measured on a Dell PowerEdge T620 model

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

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5

## Base Compiler Invocation

C benchmarks:

icc -m64

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info@spec.org

http://www.spec.org/

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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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