



SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECint®_rate2006 = 299

PowerEdge T320 (Intel Xeon E5-2470, 2.30 GHz)

SPECint_rate_base2006 = 288

CPU2006 license: 55

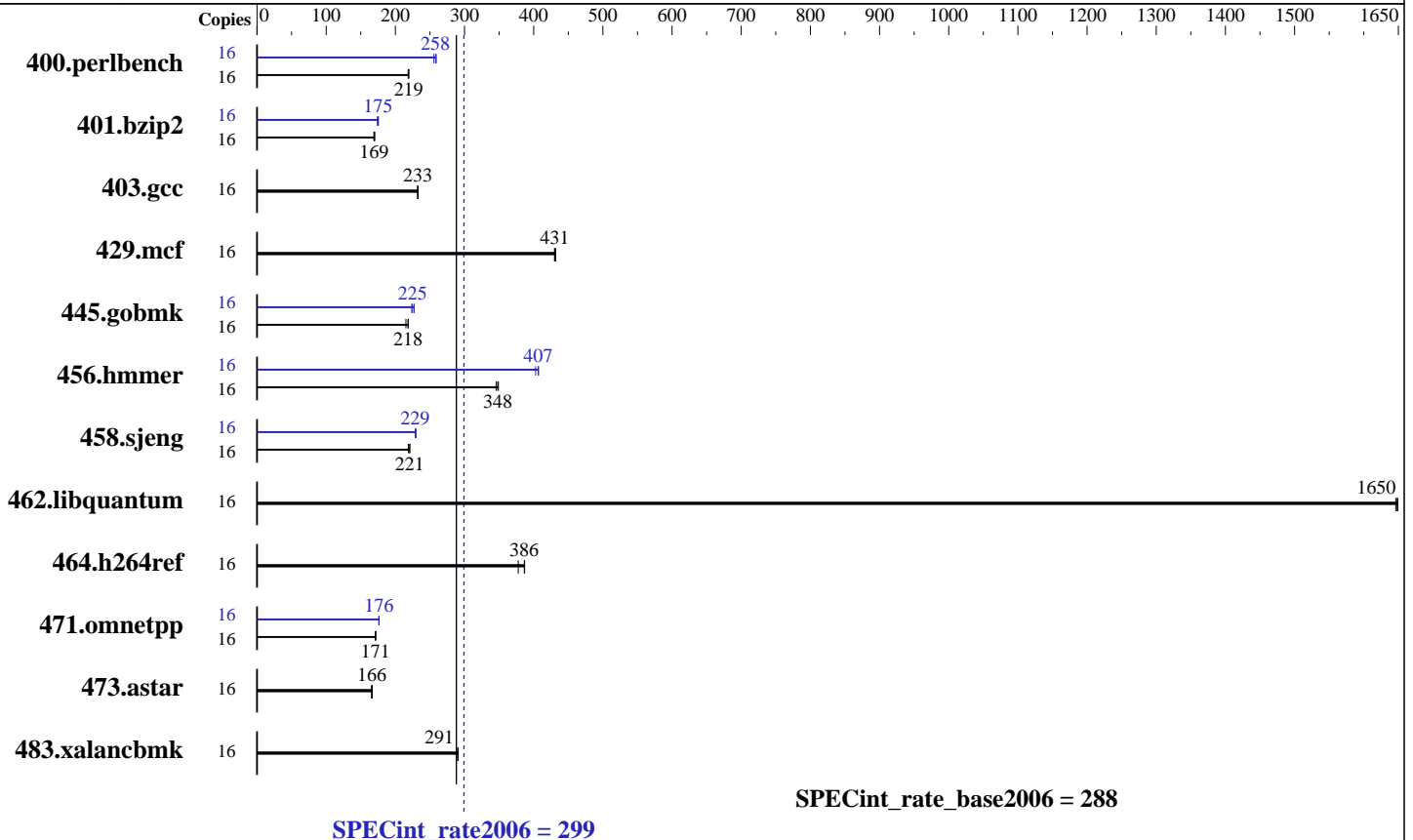
Test date: Apr-2012

Test sponsor: Dell Inc.

Hardware Availability: Jun-2012

Tested by: Dell Inc.

Software Availability: Feb-2012



Hardware

CPU Name: Intel Xeon E5-2470
 CPU Characteristics: Intel Turbo Boost Technology up to 3.10 GHz
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 8 cores, 1 chip, 8 cores/chip, 2 threads/core
 CPU(s) orderable: 1 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: 20 MB I+D on chip per chip
 Other Cache: None
 Memory: 48 GB (6 x 8 GB 2Rx4 PC3-12800R-11, ECC)
 Disk Subsystem: 1 x 300 GB 15000 RPM SAS
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 11 SP2(x86_64) 3.0.13-0.27-default
 Compiler: C/C++; Version 12.1.0.225 of Intel C++ Studio XE for Linux
 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	712	220	<u>713</u>	<u>219</u>	715	219	16	<u>606</u>	<u>258</u>	603	259	611	256
401.bzip2	16	907	170	913	169	<u>912</u>	<u>169</u>	16	<u>882</u>	<u>175</u>	887	174	880	176
403.gcc	16	<u>554</u>	<u>233</u>	555	232	553	233	16	<u>554</u>	<u>233</u>	555	232	553	233
429.mcf	16	338	432	339	430	<u>339</u>	<u>431</u>	16	338	432	339	430	<u>339</u>	<u>431</u>
445.gobmk	16	768	219	780	215	<u>768</u>	<u>218</u>	16	739	227	750	224	<u>746</u>	<u>225</u>
456.hammer	16	428	349	<u>429</u>	<u>348</u>	432	346	16	367	407	371	403	<u>367</u>	<u>407</u>
458.sjeng	16	<u>877</u>	<u>221</u>	877	221	885	219	16	<u>846</u>	<u>229</u>	842	230	846	229
462.libquantum	16	201	1650	201	1650	<u>201</u>	<u>1650</u>	16	201	1650	201	1650	<u>201</u>	<u>1650</u>
464.h264ref	16	915	387	<u>916</u>	<u>386</u>	938	378	16	915	387	<u>916</u>	<u>386</u>	938	378
471.omnetpp	16	582	172	585	171	<u>583</u>	<u>171</u>	16	<u>567</u>	<u>176</u>	567	176	567	176
473.astar	16	678	166	674	167	<u>676</u>	<u>166</u>	16	678	166	674	167	<u>676</u>	<u>166</u>
483.xalancbmk	16	380	291	<u>380</u>	<u>291</u>	381	290	16	380	291	<u>380</u>	<u>291</u>	381	290

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes

CPU Power Management set to Maximum Performance
Memory Frequency set to Maximum Performance
Turbo Boost set to Enabled
C States/C1E set to Enabled
Sysinfo program /root/CPU2006-1.2/config/sysinfo.rev6800
\$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3
running on T320 Thu Apr 19 22:57:52 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 E5-2470 0 @ 2.30GHz
1 "physical id"s (chips)
16 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
Continued on next page



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Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

```
cpu cores : 8
siblings  : 16
physical 0: cores 0 1 2 3 4 5 6 7
cache size : 20480 KB
```

From /proc/meminfo

```
MemTotal: 49381732 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
```

/usr/bin/lbs_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 T320 3.0.13-0.27-default #1 SMP Wed Feb 15 13:33:49 UTC 2012 (d73692b)
x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Apr 19 22:11 last=S

SPEC is set to: /root/CPU2006-1.2

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext3  226G  11G  204G   5% /
```

Additional information from dmidecode:

(End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:

LD_LIBRARY_PATH = "/root/CPU2006-1.2/libs/32:/root/CPU2006-1.2/libs/64"

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

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
```

runspec command invoked through numactl i.e.:

```
numactl --interleave=all runspec <etc>
```

The Dell PowerEdge T320 and

the Bull NovaScale T820 F3 models are electronically equivalent.

The results have been measured on a Dell PowerEdge T320 model



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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 -opt-mem-layout-trans=3

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
-Wl,-z,muldefs -L/smartheap -lsmartheap

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

C++ benchmarks:

icpc -m32



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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)
 -auto-ilp32

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

403.gcc: basepeak = yes

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
 -ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

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

462.libquantum: basepeak = yes

464.h264ref: basepeak = yes

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



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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.20120410.00.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.20120410.00.xml>

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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