Dell Inc. PowerEdge R820 (Intel Xeon E5-4620, 2.20 GHz)

SPECint®2006 = 40.9
SPECint_base2006 = 38.2

CPU2006 license: 55  Test date:  Mar-2012
Test sponsor:  Dell Inc.     Hardware Availability:  May-2012
Tested by:  Dell Inc.     Software Availability:  Feb-2012


Hardware

CPU Name: Intel Xeon E5-4620
CPU Characteristics: Intel Turbo Boost Technology up to 2.60 GHz
CPU MHz: 2200
FPU: Integrated
CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable: 2.4 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: 16 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (32 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz)
Disk Subsystem: 4 x 300 GB 10000 RPM SAS, RAID 0
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: 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
SPEC CINT2006 Result

Dell Inc.
PowerEdge R820 (Intel Xeon E5-4620, 2.20 GHz)

SPECint2006 = 40.9
SPECint_base2006 = 38.2

CPU2006 license: 55
Test sponsor: Dell Inc.
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Results Table

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<td>173</td>
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</tr>
</tbody>
</table>

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
Turbo Boost set to Enabled
C States/C1E set to Enabled
Sysinfo program /root/CPU2006-1.2/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdf5032aaa42e583f96b07f99d3
running on icon4p Mon Mar 12 11:12:23 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 E5-4620 0 @ 2.20GHz

  4 "physical id"s (chips)
  64 "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 : 8
  siblings : 16
  physical 0: cores 0 1 2 3 4 5 6 7

Continued on next page
**SPEC CINT2006 Result**

**Dell Inc.**

**PowerEdge R820 (Intel Xeon E5-4620, 2.20 GHz)**

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CPU2006 license: 55  
Test sponsor: Dell Inc.  
Tested by: Dell Inc.

**Platform Notes (Continued)**

- physical 1: cores 0 1 2 3 4 5 6 7
- physical 2: cores 0 1 2 3 4 5 6 7
- physical 3: cores 0 1 2 3 4 5 6 7
- cache size : 16384 KB

From /proc/meminfo:
- MemTotal: 264501512 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 icon4p 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 Mar 12 10:55 last=S

SPEC is set to: /root/CPU2006-1.2

 Filesystem   Type  Size  Used Avail Use% Mounted on  
/dev/sda2       ext3  1.1T  123G  917G  12% /

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 = "32"

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

The Dell PowerEdge R820 and the Bull NovaScale R470 F3 Models are electronically equivalent.
The results have been measured on a Dell PowerEdge R820 model.
Dell Inc.

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Base Compiler Invocation

C benchmarks:
  icc -m64

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

Continued on next page
## Dell Inc.

**PowerEdge R820 (Intel Xeon E5-4620, 2.20 GHz)**

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| SPECint_base2006 = | 38.2 |

**CPU2006 license:** 55  
**Test sponsor:** Dell Inc.  
**Tested by:** Dell Inc.

| Test date: | Mar-2012 |
| Hardware Availability: | May-2012 |
| Software Availability: | Feb-2012 |

### Peak Compiler Invocation (Continued)

- 400.perlbench: `icc -m32`
- 445.gobmk: `icc -m32`
- 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`

Continued on next page
Dell Inc.

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Peak Optimization Flags (Continued)

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

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) -unroll12 -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/smarteap -lsmarteap

473.astar: basepeak = yes

483.xalancbmk: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias

- Wl,-z,muldefs -L/smarteap -lsmarteap

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.

Tested with SPEC CPU2006 v1.2.
Originally published on 5 June 2012.