SPEC® CINT2006 Result

Dell Inc.

PowerEdge M520 (Intel Xeon E5-2403, 1.80 GHz)

SPECint®_rate2006 =　174

SPECint_rate_base2006 =　166

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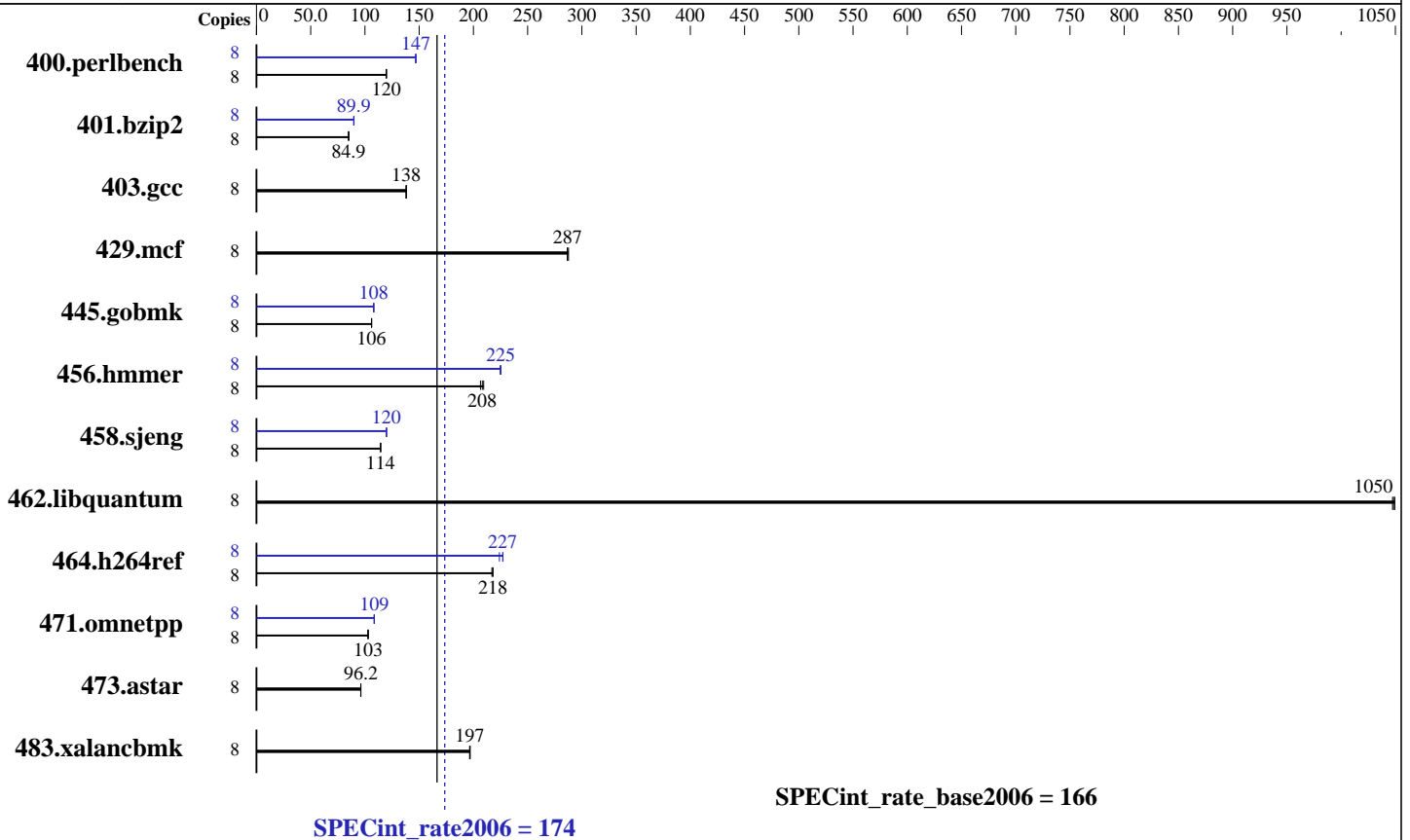**Test sponsor:**　Dell Inc.　　　　　　　　　　　　　　**Hardware Availability:**　May-2012
Tested by:　Dell Inc.　　　　　　　　　　　　　　　　**Software Availability:**　Feb-2012

Benchmark	Copies	Base	Peak
400.perlbench	8	120	147
401.bzip2	8	84.9	89.9
403.gcc	8	138	
429.mcf	8	287	
445.gobmk	8	106	108
456.hmmer	8	208	225
458.sjeng	8	114	120
462.libquantum	8	1050	
464.h264ref	8	218	227
471.omnetpp	8	103	109
473.astar	8	96.2	
483.xalancbmk	8	197	

SPECint_rate_base2006 = 166

SPECint_rate2006 = 174

Hardware

CPU Name:	Intel Xeon E5-2403
CPU Characteristics:	
CPU MHz:	1800
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:	96 GB (12 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1066 MHz)
Disk Subsystem:	1 x 1 TB 7200 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 (add definition here)
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	8	654	119	652	120	**653**	**120**	8	**532**	**147**	532	147	533	147
401.bzip2	8	910	84.8	906	85.2	**910**	**84.9**	8	862	89.6	**859**	**89.9**	858	89.9
403.gcc	8	**466**	**138**	467	138	466	138	8	**466**	**138**	467	138	466	138
429.mcf	8	255	287	254	288	**254**	**287**	8	255	287	254	288	**254**	**287**
445.gobmk	8	**791**	**106**	791	106	790	106	8	776	108	776	108	**776**	**108**
456.hmmer	8	**359**	**208**	356	209	361	207	8	331	225	332	225	**332**	**225**
458.sjeng	8	846	114	**846**	**114**	845	114	8	**808**	**120**	807	120	808	120
462.libquantum	8	**158**	**1050**	158	1050	158	1050	8	**158**	**1050**	158	1050	158	1050
464.h264ref	8	**813**	**218**	816	217	812	218	8	779	227	791	224	**780**	**227**
471.omnetpp	8	**486**	**103**	485	103	487	103	8	**460**	**109**	461	108	460	109
473.astar	8	583	96.3	584	96.1	**584**	**96.2**	8	583	96.3	584	96.1	**584**	**96.2**
483.xalancbmk	8	280	197	281	196	**281**	**197**	8	280	197	281	196	**281**	**197**

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 Blur-2P Wed Mar 21 00:33:38 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 E5-2403 0 @ 1.80GHz
          2 "physical id"s (chips)
          8 "processors"
       cores, siblings (Caution: counting these is hw and system dependent. The

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Platform Notes (Continued)

```
    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
    cache size : 10240 KB

  From /proc/meminfo
     MemTotal:       99092560 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 Blur-2P 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 21 00:26 last=S

  SPEC is set to: /root/CPU2006-1.2
     Filesystem      Type  Size  Used Avail Use% Mounted on
     /dev/sda1       ext3  913G  8.3G  859G   1% /

  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>
```

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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: -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
```

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
```

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Peak Optimization Flags (Continued)

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-ic12.1-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

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

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