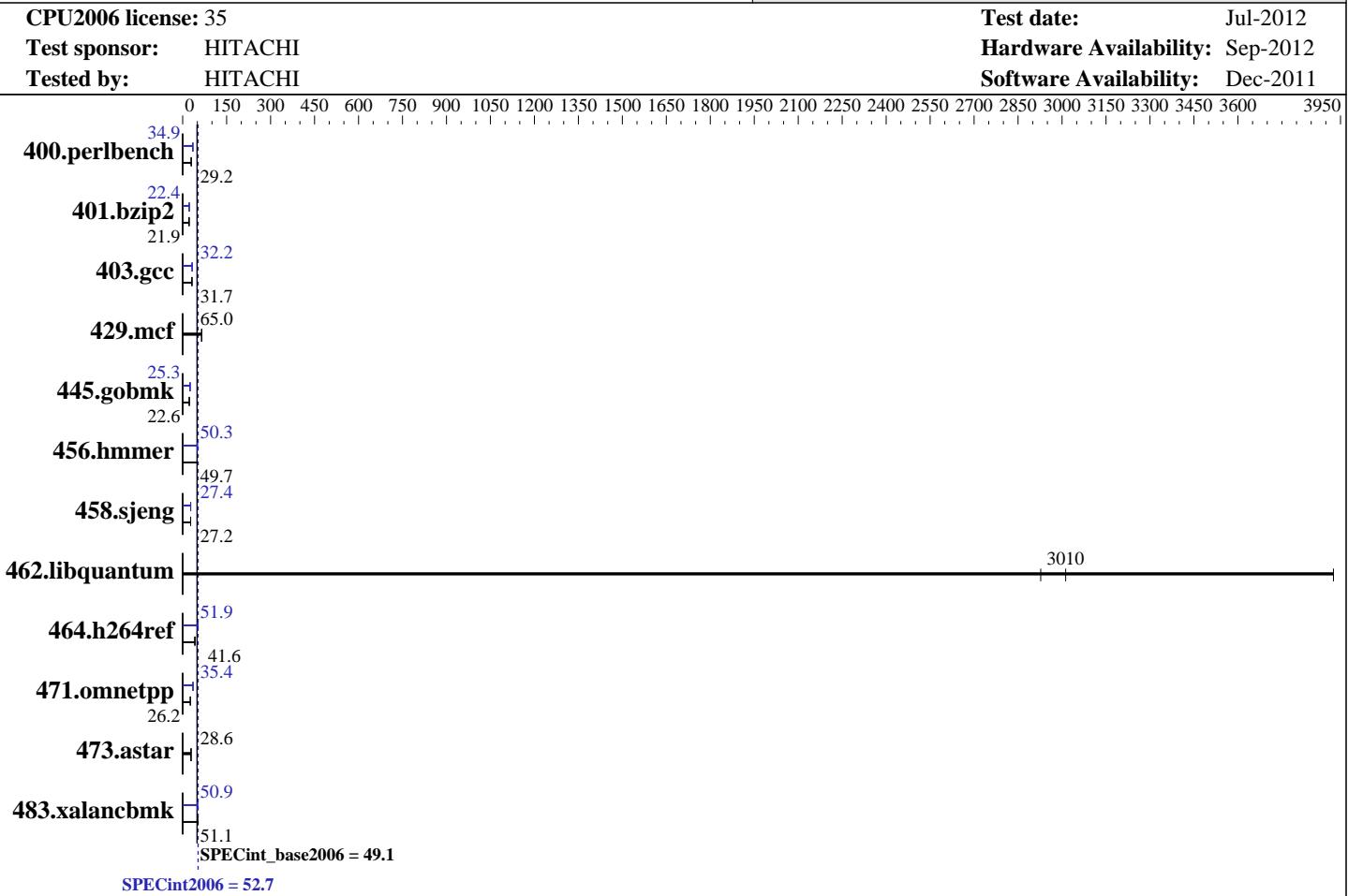# SPEC® CINT2006 Result
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HITACHI

BladeSymphony BS540A (Intel Xeon E5-4650)

SPECint®2006 = 52.7

SPECint_base2006 = 49.1

CPU2006 license: 35
Test sponsor: HITACHI
Tested by: HITACHI

Test date: Jul-2012
Hardware Availability: Sep-2012
Software Availability: Dec-2011

Benchmark	value (blue/base)
400.perlbench	34.9 / 29.2
401.bzip2	22.4 / 21.9
403.gcc	32.2 / 31.7
429.mcf	65.0
445.gobmk	25.3 / 22.6
456.hmmer	50.3 / 49.7
458.sjeng	27.4 / 27.2
462.libquantum	3010
464.h264ref	51.9 / 41.6
471.omnetpp	35.4 / 26.2
473.astar	28.6
483.xalancbmk	50.9 / 51.1

SPECint_base2006 = 49.1

SPECint2006 = 52.7

Hardware
CPU Name: Intel Xeon E5-4650
CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz: 2700
FPU: Integrated
CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip, 2 threads/core
CPU(s) orderable: 2, 4 chips
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: 256 GB (32 x 8 GB 2Rx4 PC3L-12800R-11, ECC)
Disk Subsystem: 2 x 147 GB SAS, 15000 RPM RAID1 configuration
Other Hardware: None

Software
Operating System: Red Hat Enterprise Linux Server release 6.2, Kernel 2.6.32-220.el6.x86_64
Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux
Auto Parallel: Yes
File System: ext4
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 Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
400.perlbench	334	29.3	**334**	**29.2**	335	29.2	280	34.9	**280**	**34.9**	280	34.9
401.bzip2	**440**	**21.9**	440	21.9	441	21.9	431	22.4	**431**	**22.4**	431	22.4
403.gcc	254	31.7	254	31.7	**254**	**31.7**	**250**	**32.2**	250	32.2	250	32.2
429.mcf	140	65.1	142	64.4	**140**	**65.0**	140	65.1	142	64.4	**140**	**65.0**
445.gobmk	**463**	**22.6**	463	22.6	462	22.7	414	25.3	**415**	**25.3**	415	25.3
456.hmmer	189	49.5	**188**	**49.7**	188	49.8	186	50.3	186	50.3	**186**	**50.3**
458.sjeng	**444**	**27.2**	444	27.3	445	27.2	442	27.4	442	27.4	**442**	**27.4**
462.libquantum	**6.88**	**3010**	5.28	3930	7.08	2930	**6.88**	**3010**	5.28	3930	7.08	2930
464.h264ref	**532**	**41.6**	533	41.5	529	41.8	429	51.6	426	51.9	**426**	**51.9**
471.omnetpp	239	26.2	238	26.3	**238**	**26.2**	176	35.4	178	35.0	**177**	**35.4**
473.astar	247	28.4	**246**	**28.6**	245	28.6	247	28.4	**246**	**28.6**	245	28.6
483.xalancbmk	**135**	**51.1**	136	50.8	135	51.2	136	50.6	**136**	**50.9**	135	51.0

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

```
Sysinfo program /work/cpu2006/config/sysinfo.rev6800
$Rev: 6800 $ $Date:: 2011-10-11 #$ 6f2ebdff5032aaa42e583f96b07f99d3
running on localhost.localdomain Mon Jul 16 20:46:35 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 E5-4650 0 @ 2.70GHz
      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
      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 : 20480 KB
```

SPEC CINT2006 Result

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Platform Notes (Continued)

```
   From /proc/meminfo
      MemTotal:        264507096 kB
      HugePages_Total:         0
      Hugepagesize:         2048 kB

   /usr/bin/lsb_release -d
      Red Hat Enterprise Linux Server release 6.2 (Santiago)

   From /etc/*release* /etc/*version*
      redhat-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
      system-release: Red Hat Enterprise Linux Server release 6.2 (Santiago)
      system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

   uname -a:
      Linux localhost.localdomain 2.6.32-220.el6.x86_64 #1 SMP Wed Nov 9 08:03:13
      EST 2011 x86_64 x86_64 x86_64 GNU/Linux

   run-level 3 Jul 16 20:24

   (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 = "/work/cpu2006/libs/32:/work/cpu2006/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/redhat_transparent_hugepage/enabled

HITACHI BladeSymphony BS540A and HITACHI Compute Blade 540A are electronically equivalent.
The results have been measured on a HITACHI BladeSymphony BS540A.
```

Base Compiler Invocation

C benchmarks:
    icc -m64

C++ benchmarks:
    icpc -m64

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Tested by: HITACHI

Test date: Jul-2012
Hardware Availability: Sep-2012
Software Availability: Dec-2011

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
```

```
464.h264ref: icc -m32
```

C++ benchmarks (except as noted below):
```
icpc -m32
```

```
473.astar: icpc -m64
```

SPEC CINT2006 Result
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HITACHI

BladeSymphony BS540A (Intel Xeon E5-4650)

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$SPECint\_base2006 =$ 49.1

CPU2006 license: 35		**Test date:**	Jul-2012
Test sponsor: HITACHI		**Hardware Availability:**	Sep-2012
Tested by: HITACHI		**Software Availability:**	Dec-2011

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

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
```

Continued on next page

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BladeSymphony BS540A (Intel Xeon E5-4650)

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CPU2006 license: 35		**Test date:**	Jul-2012
Test sponsor:	HITACHI	**Hardware Availability:**	Sep-2012
Tested by:	HITACHI	**Software Availability:**	Dec-2011

Peak Optimization Flags (Continued)

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/PlatformHitachi-V1.2.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/PlatformHitachi-V1.2.xml

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For other inquiries, please contact webmaster@spec.org.

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