



# SPEC® CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## SGI

SGI Altix ICE 8400EX (AMD Opteron 6282 SE, 2.60 GHz)  
AMD Opteron 6282 SE

**SPECint®\_rate2006 = 534**

**SPECint\_rate\_base2006 = 465**

**CPU2006 license:** 4

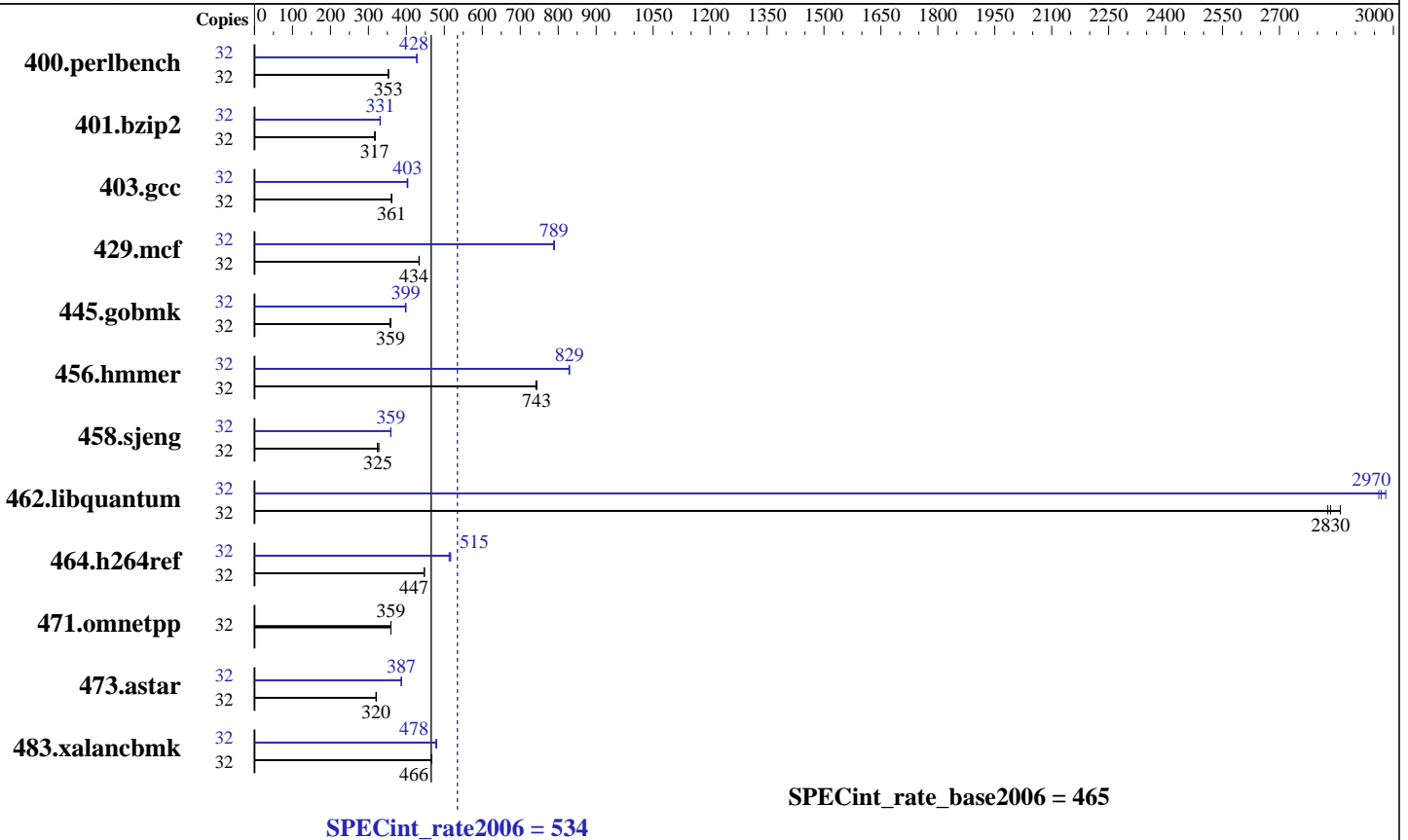
**Test sponsor:** SGI

**Tested by:** SGI

**Test date:** Dec-2011

**Hardware Availability:** Nov-2011

**Software Availability:** Jul-2011



### Hardware

**CPU Name:** AMD Opteron 6282 SE  
**CPU Characteristics:** AMD Turbo CORE technology up to 3.30 GHz  
**CPU MHz:** 2600  
**FPU:** Integrated  
**CPU(s) enabled:** 32 cores, 2 chips, 16 cores/chip  
**CPU(s) orderable:** 1,2 chips  
**Primary Cache:** 512 KB I on chip per chip, 64 KB I shared / 2 cores; 16 KB D on chip per core  
**Secondary Cache:** 16 MB I+D on chip per chip, 2 MB shared / 2 cores  
**L3 Cache:** 16 MB I+D on chip per chip, 8 MB shared / 8 cores  
**Other Cache:** None  
**Memory:** 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)  
**Disk Subsystem:** 16 TB RAID 5  
 32 x 500 GB SATA, 7200 RPM  
**Other Hardware:** None

### Software

**Operating System:** SUSE Linux Enterprise Server 11 (x86\_64) sp1, Kernel 2.6.32.46-0.3-default  
**Compiler:** C/C++: Version 4.2.5.2 of x86 Open64 Compiler Suite (from AMD)  
**Auto Parallel:** No  
**File System:** NFSv3 IPoIB  
**System State:** Run level 3 (Full multiuser with network)  
**Base Pointers:** 32/64-bit  
**Peak Pointers:** 32/64-bit  
**Other Software:** SmartHeap 10.0 32-bit Library for Linux



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## SGI

SGI Altix ICE 8400EX (AMD Opteron 6282 SE, 2.60 GHz)  
AMD Opteron 6282 SE

SPECint\_rate2006 = 534

SPECint\_rate\_base2006 = 465

CPU2006 license: 4

Test sponsor: SGI

Tested by: SGI

Test date: Dec-2011

Hardware Availability: Nov-2011

Software Availability: Jul-2011

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	32	888	352	886	353	<b>886</b>	<b>353</b>	32	732	427	<b>731</b>	<b>428</b>	731	428
401.bzip2	32	<b>974</b>	<b>317</b>	971	318	976	316	32	932	331	935	330	<b>933</b>	<b>331</b>
403.gcc	32	<b>714</b>	<b>361</b>	712	362	714	361	32	638	404	<b>639</b>	<b>403</b>	641	402
429.mcf	32	672	434	673	433	<b>673</b>	<b>434</b>	32	369	790	<b>370</b>	<b>789</b>	370	789
445.gobmk	32	940	357	<b>936</b>	<b>359</b>	935	359	32	845	397	842	399	<b>842</b>	<b>399</b>
456.hammer	32	402	744	403	741	<b>402</b>	<b>743</b>	32	<b>360</b>	<b>829</b>	360	828	360	830
458.sjeng	32	1195	324	1182	328	<b>1192</b>	<b>325</b>	32	1077	360	1079	359	<b>1078</b>	<b>359</b>
462.libquantum	32	232	2860	235	2830	<b>234</b>	<b>2830</b>	32	224	2960	<b>223</b>	<b>2970</b>	223	2980
464.h264ref	32	1585	447	1582	448	<b>1584</b>	<b>447</b>	32	1382	513	<b>1375</b>	<b>515</b>	1370	517
471.omnetpp	32	557	359	556	360	<b>557</b>	<b>359</b>	32	557	359	556	360	<b>557</b>	<b>359</b>
473.astar	32	<b>701</b>	<b>320</b>	701	320	701	320	32	581	387	<b>581</b>	<b>387</b>	581	387
483.xalancbmk	32	474	466	<b>473</b>	<b>466</b>	473	467	32	<b>462</b>	<b>478</b>	460	480	462	478

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

## Submit Notes

The config file option 'submit' was used.  
'numactl' was used to bind copies to the cores.  
See the configuration file for details.

## Operating System Notes

'ulimit -s unlimited' was used to set environment stack size  
'ulimit -l 2097152' was used to set environment locked pages in memory limit  
Set vm/nr\_hugepages=28672 in /etc/sysctl.conf  
mount -t hugetlbfs nodev /tmp/hugepages

## General Notes

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

HUGETLB\_LIMIT = "896"

LD\_LIBRARY\_PATH = "/store/cma/cpu2006-v1.2/amd1104-rate-libs-revB/32:/store/cma/cpu2006-v1.2/amd1104-rate-libs-revB/64"

The x86 Open64 Compiler Suite is only available from (and supported by) AMD at <http://developer.amd.com/cpu/open64>

Binaries were compiled on a system with 2x AMD Opteron 6282SE chips + 64GB Memory using RHEL 6.1



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## SGI

SGI Altix ICE 8400EX (AMD Opteron 6282 SE, 2.60 GHz)  
AMD Opteron 6282 SE

SPECint\_rate2006 = 534

SPECint\_rate\_base2006 = 465

CPU2006 license: 4  
Test sponsor: SGI  
Tested by: SGI

Test date: Dec-2011  
Hardware Availability: Nov-2011  
Software Availability: Jul-2011

## Base Compiler Invocation

C benchmarks:  
opencc  
  
C++ benchmarks:  
openCC

## 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  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:  
-march=bdver1 -Ofast -CG:local\_sched\_alg=1 -INLINE:aggressive=on  
-IPA:plimit=8000 -IPA:small\_pu=100 -HP:bd=2m:heap=2m -mso  
-LNO:prefetch=2  
  
C++ benchmarks:  
-march=bdver1 -Ofast -m32 -INLINE:aggressive=on -CG:cmp\_peep=on  
-D\_\_OPEN64\_FAST\_SET -L/root/work/libraries/SmartHeap-10/lib -lsmarheap

## Peak Compiler Invocation

C benchmarks:  
opencc  
  
C++ benchmarks:  
openCC

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## SGI

SGI Altix ICE 8400EX (AMD Opteron 6282 SE, 2.60 GHz)  
AMD Opteron 6282 SE

SPECint\_rate2006 = 534

SPECint\_rate\_base2006 = 465

CPU2006 license: 4

Test sponsor: SGI

Tested by: SGI

Test date: Dec-2011

Hardware Availability: Nov-2011

Software Availability: Jul-2011

## Peak Portability Flags (Continued)

401.bzip2: -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  
 483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

400.perlbench: -march=bdver1 -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -Ofast -LNO:prefetch=2 -LNO:opt=0  
 -IPA:plimit=20000 -OPT:unroll\_times\_max=8  
 -OPT:unroll\_size=256 -OPT:unroll\_level=2 -OPT:keep\_ext=on  
 -WOPT:if\_conv=0 -WOPT:sib=on -CG:local\_sched\_alg=1  
 -CG:unroll\_fb\_req=on -CG:movext\_icmp=off -HP:bd=2m:heap=2m

401.bzip2: -march=bdver1 -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -O3 -LNO:prefetch=2 -LNO:pf2=0  
 -OPT:alias=disjoint -OPT:goto=off -CG:local\_sched\_alg=1  
 -HP:bd=2m:heap=2m

403.gcc: -march=bdver1 -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -Ofast -LNO:trip\_count=256  
 -CG:cmp\_peep=on -CG:pre\_minreg\_level=2 -m32  
 -HP:bd=2m:heap=2m -GRA:unspill=on -IPA:small\_pu=200  
 -WOPT:sib=on

429.mcf: -march=bdver1 -O3 -OPT:unroll\_times\_max=5 -ipa  
 -INLINE:aggressive=on -CG:gcm=off  
 -GRA:prioritize\_by\_density=on -m32 -HP:bd=2m:heap=2m -mso

445.gobmk: -march=bdver1 -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -Ofast -OPT:unroll\_size=256  
 -OPT:unroll\_times\_max=8 -OPT:keep\_ext=on -IPA:plimit=750  
 -IPA:min\_hotness=300 -IPA:pu\_reorder=1  
 -LNO:ignore\_feedback=off -WOPT:if\_conv=2 -HP:bd=2m:heap=2m

456.hmmer: -march=bdver1 -fb\_create fbdata(pass 1)  
 -fb\_opt fbdata(pass 2) -Ofast -LNO:prefetch=2  
 -OPT:alias=disjoint -OPT:unroll\_times\_max=16  
 -OPT:unroll\_size=512 -OPT:unroll\_level=2 -OPT:keep\_ext=on  
 -CG:cflow=0 -CG:cmp\_peep=on -CG:pre\_local\_sched=off  
 -HP:bd=2m:heap=2m

Continued on next page



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## SGI

SGI Altix ICE 8400EX (AMD Opteron 6282 SE, 2.60 GHz)  
AMD Opteron 6282 SE

**SPECint\_rate2006 = 534**

**SPECint\_rate\_base2006 = 465**

**CPU2006 license:** 4

**Test sponsor:** SGI

**Tested by:** SGI

**Test date:** Dec-2011

**Hardware Availability:** Nov-2011

**Software Availability:** Jul-2011

## Peak Optimization Flags (Continued)

458.sjeng: -march=bdver1 -fb\_create fbdata(pass 1)  
-fb\_opt fbdata(pass 2) -Ofast -CG:ptr\_load\_use=0  
-CG:divrem\_opt=on -CG:movext\_icmp=off -CG:locs\_best=on  
-LNO:full\_unroll=10 -IPA:pu\_reorder=2 -HP:bd=2m:heap=2m  
-WOPT:sib=on

462.libquantum: -march=bdver1 -Ofast -mso -OPT:unroll\_size=512  
-OPT:unroll\_times\_max=16 -LNO:prefetch=2  
-LNO:prefetch\_ahead=4 -LNO:pf2=0 -CG:local\_sched\_alg=1  
-INLINE:aggressive=on -IPA:plimit=15000 -IPA:small\_pu=100  
-HP:bdt=2m:heap=2m,limit=300

464.h264ref: -march=bdver1 -fb\_create fbdata(pass 1)  
-fb\_opt fbdata(pass 2) -O3 -OPT:unroll\_size=256  
-OPT:unroll\_times\_max=2 -IPA:plimit=20000  
-OPT:alias=disjoint -CG:ptr\_load\_use=0  
-CG:local\_sched\_alg=1 -HP:bdt=2m:heap=2m

C++ benchmarks:

471.omnetpp: basepeak = yes

473.astar: -march=bdver1 -fb\_create fbdata(pass 1)  
-fb\_opt fbdata(pass 2) -Ofast -TENV:frame\_pointer=off  
-WOPT:if\_conv=0 -WOPT:sib=on -CG:divrem\_opt=on  
-GRA:optimize\_boundary=on -OPT:alias=disjoint  
-INLINE:aggressive=on -IPA:small\_pu=3000 -IPA:plimit=3000  
-m32 -HP:bdt=2m:heap=2m

483.xalancbmk: -march=bdver1 -Ofast -LNO:prefetch=2 -OPT:unroll\_size=512  
-OPT:unroll\_times\_max=8 -D\_\_OPEN64\_FAST\_SET  
-INLINE:aggressive=on -m32 -CG:cmp\_peep=on  
-CG:local\_sched=off -GRA:unspill=on -TENV:frame\_pointer=off  
-fno-emit-exceptions  
-L/root/work/libraries/SmartHeap-10/lib -lsmartheap

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/x86-open64-425-flags-rate-revB.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/x86-open64-425-flags-rate-revB.xml>



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## SGI

SGI Altix ICE 8400EX (AMD Opteron 6282 SE, 2.60 GHz)  
AMD Opteron 6282 SE

**SPECint\_rate2006 = 534**

**SPECint\_rate\_base2006 = 465**

**CPU2006 license:** 4

**Test sponsor:** SGI

**Tested by:** SGI

**Test date:** Dec-2011

**Hardware Availability:** Nov-2011

**Software Availability:** Jul-2011

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.  
Report generated on Thu Jul 24 02:15:03 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 5 March 2012.