



# SPEC<sup>®</sup> CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

(Test Sponsor: Advanced Micro Devices)

Supermicro A+ Server 2042G-6RF,  
AMD Opteron 6234

SPECint<sup>®</sup>\_rate2006 = 763

SPECint\_rate\_base2006 = 669

CPU2006 license: 49

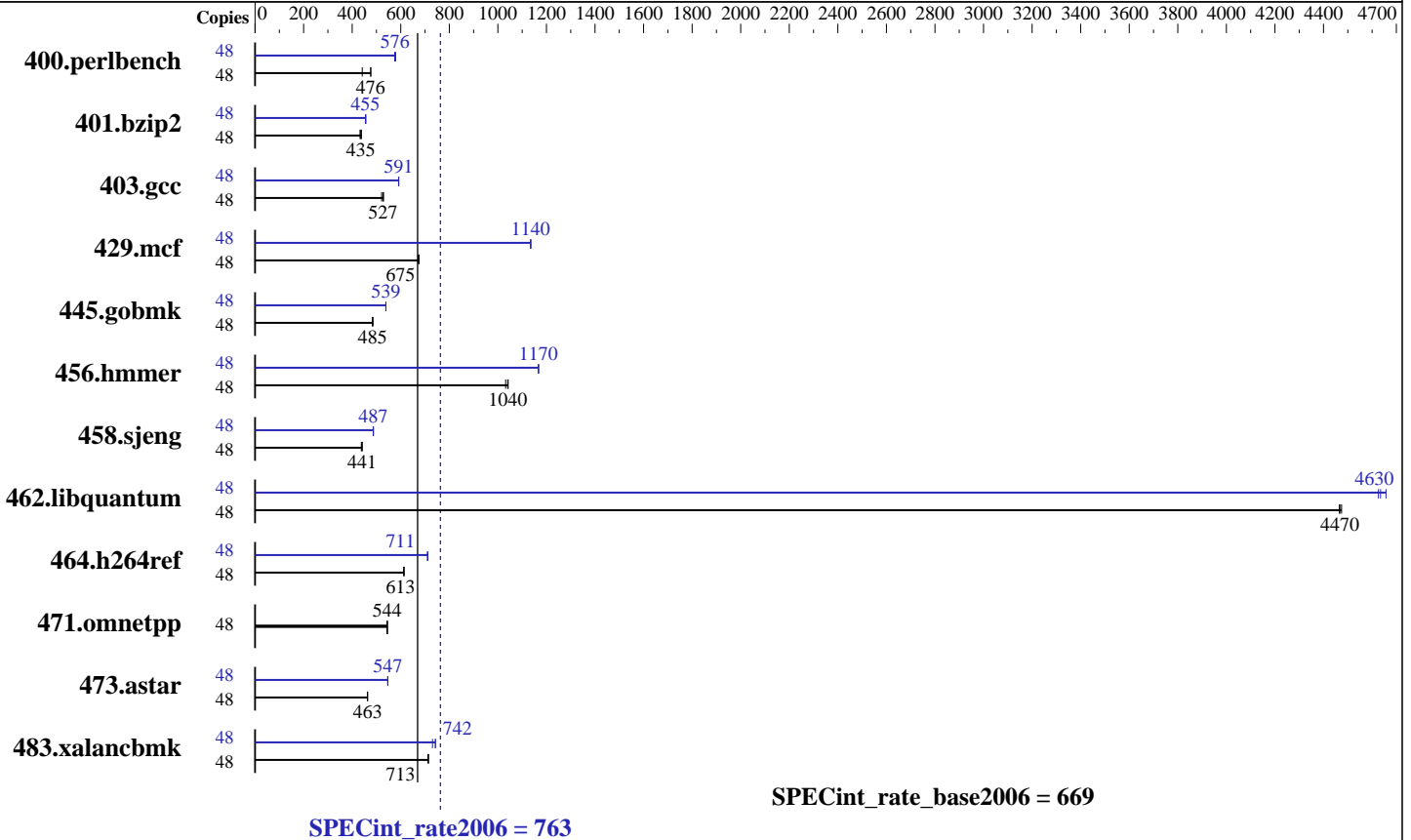
Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Nov-2011

Hardware Availability: Nov-2011

Software Availability: Jul-2011



### Hardware

CPU Name: AMD Opteron 6234  
 CPU Characteristics: AMD Turbo CORE technology up to 3.00 GHz  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 48 cores, 4 chips, 12 cores/chip  
 CPU(s) orderable: 2,4 chips  
 Primary Cache: 384 KB I on chip per chip,  
 64 KB I shared / 2 cores;  
 16 KB D on chip per core  
 Secondary Cache: 12 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 / 6 cores  
 Other Cache: None  
 Memory: 256 GB (32 x 8 GB 2Rx4 PC3-10600R-9, ECC)  
 Disk Subsystem: 1 x 500 GB SATA, 7200 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.1,  
 Kernel 2.6.32-131.0.15.el6.x86\_64  
 Compiler: C/C++: Version 4.2.5.2 of x86 Open64 Compiler  
 Suite (from AMD)  
 Auto Parallel: No  
 File System: ext3  
 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

## Supermicro

(Test Sponsor: Advanced Micro Devices)

Supermicro A+ Server 2042G-6RF,  
AMD Opteron 6234

SPECint\_rate2006 = 763

SPECint\_rate\_base2006 = 669

CPU2006 license: 49

Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Nov-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	48	1062	441	984	477	<b>985</b>	<b>476</b>	48	810	579	<b>814</b>	<b>576</b>	815	575
401.bzip2	48	<b>1064</b>	<b>435</b>	1071	432	1057	438	48	1019	455	1015	456	<b>1018</b>	<b>455</b>
403.gcc	48	<b>733</b>	<b>527</b>	730	529	741	521	48	653	592	<b>654</b>	<b>591</b>	654	591
429.mcf	48	648	676	<b>648</b>	<b>675</b>	651	672	48	386	1140	386	1130	<b>386</b>	<b>1140</b>
445.gobmk	48	1041	484	1038	485	<b>1039</b>	<b>485</b>	48	<b>934</b>	<b>539</b>	934	539	935	539
456.hammer	48	<b>430</b>	<b>1040</b>	434	1030	430	1040	48	384	1170	384	1170	<b>384</b>	<b>1170</b>
458.sjeng	48	1327	438	1317	441	<b>1317</b>	<b>441</b>	48	1194	487	1190	488	<b>1194</b>	<b>487</b>
462.libquantum	48	223	4470	222	4470	<b>223</b>	<b>4470</b>	48	215	4630	<b>215</b>	<b>4630</b>	214	4660
464.h264ref	48	1733	613	1732	613	<b>1733</b>	<b>613</b>	48	1495	711	<b>1495</b>	<b>711</b>	1494	711
471.omnetpp	48	551	544	<b>551</b>	<b>544</b>	551	544	48	551	544	<b>551</b>	<b>544</b>	551	544
473.astar	48	728	463	<b>727</b>	<b>463</b>	727	463	48	616	547	617	546	<b>616</b>	<b>547</b>
483.xalancbmk	48	<b>464</b>	<b>713</b>	465	713	464	714	48	453	731	<b>446</b>	<b>742</b>	446	743

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 transparent\_hugepage=never as a boot parameter in /boot/grub/menu.lst  
Set kernel/randomize\_va\_space=0 in /etc/sysctl.conf

Set vm/nr\_hugepages=43008 in /etc/sysctl.conf  
mount -t hugetlbfs nodev /mnt/hugepages

## General Notes

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

HUGETLB\_LIMIT = "896"

LD\_LIBRARY\_PATH = "/root/work/cpu2006v1.2/amd1104-rate-libs-revB/32:/root/work/cpu2006v1.2/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

## Supermicro

(Test Sponsor: Advanced Micro Devices)

Supermicro A+ Server 2042G-6RF,  
AMD Opteron 6234

SPECint\_rate2006 = 763

SPECint\_rate\_base2006 = 669

CPU2006 license: 49

Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Nov-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

## Supermicro

(Test Sponsor: Advanced Micro Devices)

Supermicro A+ Server 2042G-6RF,  
AMD Opteron 6234

SPECint\_rate2006 = 763

SPECint\_rate\_base2006 = 669

CPU2006 license: 49

Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Nov-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

## Supermicro

(Test Sponsor: Advanced Micro Devices)

Supermicro A+ Server 2042G-6RF,  
AMD Opteron 6234

SPECint\_rate2006 = 763

SPECint\_rate\_base2006 = 669

CPU2006 license: 49

Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Nov-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 files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/amd-platform-rate-revB.20120103.html>

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

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/amd-platform-rate-revB.20120103.xml>

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



# SPEC CINT2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

(Test Sponsor: Advanced Micro Devices)

Supermicro A+ Server 2042G-6RF,  
AMD Opteron 6234

SPECint\_rate2006 = 763

SPECint\_rate\_base2006 = 669

**CPU2006 license:** 49

**Test sponsor:** Advanced Micro Devices

**Tested by:** Advanced Micro Devices

**Test date:** Nov-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 03:23:41 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 3 January 2012.