



OMPM2001 Result

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IBM Corporation
IBM Power 755 (3.3 GHz, 32 core, SLES)

SPECompMpeak2001 = 101911
SPECompMbase2001 = 91551

SPEC license #HPG0005 | Tested by: IBM Corporation | Test site: Austin, TX | Test date: Jan-2010 | Hardware Avail: Feb-2010 | Software Avail: Dec-2009

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	40.2	149267	40.2	149267	
312.swim_m	6000	52.3	114696	45.1	132973	
314.mgrid_m	7300	56.7	128848	56.7	128848	
316.applu_m	4000	26.0	153933	21.8	183302	
318.galgel_m	5100	153	33346	145	35122	
320.quake_m	2600	33.6	77477	26.8	97088	
324.apsi_m	3400	32.2	105501	32.2	105501	
326.gafort_m	8700	117	74503	93.5	93055	
328.fma3d_m	4600	84.7	54306	84.7	54306	
330.art_m	6400	31.0	206434	23.5	272767	
332.ammp_m	7000	143	48986	132	52975	

Hardware

CPU: POWER7
 CPU MHz: 3300
 FPU: Integrated
 CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip, 4 threads/core
 CPU(s) orderable: 32 cores
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 4 MB I+D on chip per core
 Other Cache: None
 Memory: 256 GB (32x8 GB) DDR3 1066 MHz
 Disk Subsystem: 8x146.8 GB SAS SFF 15K RPM
 Other Hardware: None

Software

OpenMP Threads: 128
 Parallel: OpenMP
 Operating System: SUSE Linux Enterprise Server 11 (ppc64)
 Kernel 2.6.27.19-5-ppc64
 Compiler: IBM XL C/C++ for Linux, V10.1
 Updated with the Oct2009 PTF
 IBM XL Fortran for Linux, V12.1
 Updated with the Oct2009 PTF
 File System: ext3
 System State: Run level 3 (multi-user)

Notes/Tuning Information

The "IBM Power 750 Express (3.3 GHz)" and "IBM Power 755 (3.3 GHz)" are electronically equivalent. The results have been measured on the "IBM Power 755 (3.3 GHz)"

Portability Flags Variables

-qfixed used in: 310.wupwise_m, 312.swim_m, 314.mgrid_m, 316.applu_m, 324.apsi_m
 -qfixed=80 used in: 318.galgel_m
 -qsuffix=f=f90 used in: 318.galgel_m 326.gafort_m, 328.fma3d_m

Base Flags

C: -O5 -q64 -qsmp=omp
 FORTRAN: -O5 -q64 -qsmp=omp

Base & Peak Environment Flags (unless noted differently below):

ENV_OMP_NUM_THREADS = 32
 ENV_OMP_DYNAMIC=FALSE
 ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=4
 ENV_XLFRTEOPTS=intrinthds=1

Peak sources:

SPEC OMPL2001 source for 32bit systems modified for SPEC OMPM2001 used with 312.swim_m, 316.applu_m, 320.quake_m, 326.gafort_m



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Notes/Tuning Information (Continued)

Peak Flags

-qsmp=omp used in all cases

310.wupwise_m: basepeak = 1

312.swim_m: -O4 -q64

314.mgrid_m: basepeak = 1

316.applu_m: -O4 -q32

ENV_HUGETLB_MORECORE=yes

ENV_LD_PRELOAD=libhugetlbfs.so

318.galgel_m: -O4 -q64

-B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT

320.equake_m: -O5 -q64 -qhot=arraypad -Q

324.apsi_m: basepeak = 1

326.gafort_m: -O4 -q32 -qhot=arraypad

-B/usr/share/libhugetlbfs/ -tl -Wl,--hugetlbfs-link=BDT

ENV_OMP_NUM_THREADS = 128

ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1

328.fma3d_m: basepeak = 1

330.art_m: -O3 -q32

ENV_HUGETLB_MORECORE=yes

ENV_LD_PRELOAD=libhugetlbfs.so

332.ammp_m: -O5 -q32

ENV_HUGETLB_MORECORE=yes

ENV_LD_PRELOAD=libhugetlbfs.so

C: IBM XL C for Linux invoked as xlc_r

Fortran 90: IBM XL Fortran for Linux invoked as xlf90_r

Use flags-description file IBM-20080408-Linux.txt

ulimit -s (stack) set to 1048576.

Large pages reserved as follows by root user:

echo 480 > /proc/sys/vm/nr_hugepages

System configured with libhugetlbfs library for application access to large pages

System configured with:

echo "NO_NEW_FAIR_SLEEPERS" > /sys/kernel/debug/sched_features

Intelligent Energy Optimization enabled, up to 3.64 GHz