



OMPM2001 Result

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IBM Corporation
IBM System p 550 (4.2 GHz, 8 core, Red Hat)

SPECompMpeak2001 = 40773
SPECompMbase2001 = 36903

SPEC license #HPG0005 | Tested by: IBM | Test site: Austin, TX | Test date: Jan-2008 | Hardware Avail: Feb-2008 | Software Avail: Nov-2007

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	109	54984	108	55475	
312.swim_m	6000	180	33421	174	34539	
314.mgrid_m	7300	172	42349	166	43933	
316.applu_m	4000	78.4	51002	63.4	63133	
318.galgel_m	5100	165	30896	130	39303	
320.quake_m	2600	73.1	35580	56.0	46424	
324.apsi_m	3400	91.2	37261	91.2	37261	
326.gafort_m	8700	370	23541	370	23541	
328.fma3d_m	4600	214	21447	212	21674	
330.art_m	6400	62.0	103146	50.1	127734	
332.ammp_m	7000	343	20417	318	21989	

Hardware

CPU: POWER6
 CPU MHz: 4200
 FPU: Integrated
 CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip, 2 threads/core
 CPU(s) orderable: 2,4,8 cores
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 4 MB I+D on chip per core
 L3 Cache: 32 MB I+D off chip per chip
 Other Cache: None
 Memory: 64 GB (32x2 GB) DDR2 667 MHz
 Disk Subsystem: 2x146 GB SAS 15K RPM
 Other Hardware: None

Software

OpenMP Threads: 16
 Parallel: OpenMP
 Operating System: Red Hat Enterprise Linux Advanced Platform 5.1 for IBM POWER
 Compiler: IBM XL C/C++ Advanced Edition for Linux, V9.0
 IBM XL Fortran Advanced Edition for Linux, V11.1
 Other Software: IBM Engineering and Scientific Subroutine Library for Linux on POWER, Version 4.3
 File System: ext3
 System State: Multi-User

Notes/Tuning Information

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 -q32 -qsmp=omp
 FORTRAN: -O5 -q32 -qsmp=omp

Base & Peak Environment Flags:

ENV_OMP_NUM_THREADS = 16
 ENV_OMP_DYNAMIC=FALSE
 ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
 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

Peak Flags

-qsmp=omp used in all cases



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Notes/Tuning Information (Continued)

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310.wupwise:      -O5 -q32
                  ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
                  ENV_HUGETLB_MORECORE=yes
                  ENV_LD_PRELOAD=libhugetlbfs.so
312.swim_m:       -O3 -q64
                  ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
314.mgrid_m:     -O4 -q64
                  ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
316.applu_m:     -O4 -q64
                  ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
                  ENV_HUGETLB_MORECORE=yes
                  ENV_LD_PRELOAD=libhugetlbfs.so
318.galgel_m:    -O5 -q64 -qessl
                  -B/usr/share/libhugetlbfs/ -t1 -Wl,--hugetlbfs-link=BDT
                  EXTRA_LIBS=-lesslsmpl
                  ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
                  ENV_HUGETLB_MORECORE=yes
320.earthquake_m: -O5 -q64 -qpdf1/pdf2 -qhot=arraypad -Q
                  ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
324.apsi_m:      basepeak = 1
326.gafort_m:    basepeak = 1
328.fma3d_m:     -O5 -q64 -qhot=arraypad
                  ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
330.art_m:       -O3 -q32 -qhot=arraypad -Q
                  ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
                  ENV_HUGETLB_MORECORE=yes
                  ENV_LD_PRELOAD=libhugetlbfs.so
332.ammp_m:      -O5 -q64 -qhot=arraypad -Q
                  ENV_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:STARTPROC=0:STRIDE=1
                  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

```

kernel release 2.6.18-53.el5.

ulimit -s (stack) set to unlimited.

System set to Enhanced mode when defining partition on HMC

Large pages reserved as follows by root user:

```
echo 240 > /proc/sys/vm/nr_hugepages
```

System configured with libhugetlbfs library for application access to large pages

Use flags-description file IBM-20070718-Linux.txt