



OMP2001 Result

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IBM Corporation
IBM System p5 560Q (1800 Mhz, 16 core, RHEL)

SPECompMpeak2001 = 45895
SPECompMbase2001 = 35534

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

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	88.0	68215	88.0	68215	
312.swim_m	6000	183	32799	175	34201	
314.mgrid_m	7300	241	30318	146	49972	
316.applu_m	4000	60.1	66566	52.5	76164	
318.galgel_m	5100	144	35417	135	37725	
320.earthquake_m	2600	252	10308	62.1	41900	
324.apsi_m	3400	79.9	42573	79.7	42659	
326.gafort_m	8700	195	44553	183	47529	
328.fma3d_m	4600	205	22475	205	22475	
330.art_m	6400	86.9	73675	58.8	108831	
332.ammp_m	7000	318	22026	256	27340	

Hardware

CPU: POWER5+
 CPU MHz: 1800
 FPU: Integrated
 CPU(s) enabled: 16 cores, 8 chips, 2 cores/chip (SMT on)
 CPU(s) orderable: 4, 8, 16 cores
 Primary Cache: 64 KB I + 32 KB D on chip per core
 Secondary Cache: 1920 KB I+D on chip per chip
 L3 Cache: 36 MB I+D off chip per chip
 Other Cache: None
 Memory: 64 GB (32x2 GB)
 Disk Subsystem: 1x73GB SCSI, 15K RPM
 Other Hardware: None

Software

OpenMP Threads: 32
 Parallel: OpenMP
 Operating System: Red Hat Enterprise Linux Server release 5
 Compiler: IBM XL C/C++ Advanced Edition V8.0 for Linux
 IBM XL Fortran Advanced Edition V10.1 for Linux
 File System: ext3
 System State: Multi-User

Notes/Tuning Information

Portability Flags & Environment Variables

-qsmp=omp used in all cases
 -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: 326.gafort_m, 328.fma3d_m

Base Flags

C: -O5 -q64 -qhot=arraypad -Q
 FORTRAN: -O5 -qipa=noobject -qipa=partition=large -qmaxmem=-1 -qipa=threads=4

Base & Peak User Environment:

OMP_NUM_THREADS=32 (defaulted to number of processes)
 XLSPMPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC:STARTPROC=0:STRIDE=1
 OMP_DYNAMIC=FALSE
 MALLOCMULTIHEAP=1
 XLFRTIOPTS=intrinthds=1

Peak Flags:

-qsmp=omp used in all cases
 310.wupwise_m: basepeak=1
 312.swim_m: -qpdf1/pdf2
 -O4 -q64
 ENV_HUGETLB_MORECORE=yes



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Notes/Tuning Information (Continued)

```

ENV_LD_PRELOAD=libhugetlbfs.so
314.mgrid_m: -O5 -q64 -qipa=partition=large -qmaxmem=-1
316.applu_m: -qpdf1/pdf2
              -O4 -q64
ENV_HUGETLB_MORECORE=yes
ENV_LD_PRELOAD=libhugetlbfs.so
318.galgel_m: -q64 -O5 -qmaxmem=-1 -qarch=pwr3 -qtune=pwr3 -qipa=partition=large
320.equake_m: -qpdf1/pdf2
              -O5 -q64 -qarch=pwr5 -qtune=pwr5 -qhot=arraypad -Q
324.apsi_m: -O5 -qipa=partition=large -qmaxmem=-1
326.gafort_m: -O5 -qhot=arraypad -qipa=partition=large -qmaxmem=-1
              ENV_HUGETLB_MORECORE=yes
              ENV_LD_PRELOAD=libhugetlbfs.so
328.fma3d_m: basepeak = 1
330.art_m: -qpdf1/pdf2
           -O5 -q64 -qhot=arraypad -Q
332.ammp_m: -O3 -q32 -qipa=partition=large -qmaxmem=-1 -qhot=arraypad -Q
           ENV_HUGETLB_MORECORE=yes
           ENV_LD_PRELOAD=libhugetlbfs.so

```

Peak sources:

SPEC OMPL2001 source for 32bit systems modified for SPEC OMPM2001 used with 312.swim_m (srcalt=ompl.32), 316.applu_m (srcalt=ompl.32), 320.equake_m (srcalt=ompl.32), 326.gafort_m (srcalt=ompl.32)

Executables built on RHEL4 u3 with IBM compilers as specified above on a similar POWER5+ 2200 MHz processor with 32GB of memory.

Executables ran on RHEL5 with associated IBM compiler run-time libraries.

IBM XL C/C++ Advanced Edition V8.0 for Linux Runtime Environment Component

IBM XL Fortran Advanced Edition V10.1 for Linux Runtime Environment Component

SMT: Acronym for 'Simultaneous Multi-Threading'. A processor technology that allows the simultaneous execution of multiple thread contexts within a single processor core. Enabled by default.

C: IBM XL C for Linux invoked as xlc_r
 Fortran: IBM XL Fortran for Linux invoked as xlf90_r

ulimits set to unlimited.

Large pages reserved as follows by root user:

```
echo 200 > /proc/sys/vm/nr_hugepages
```

System configured with libhugetlbfs library for application access to large pages (16 MB)

Use flags-description file IBM-20070212-Linux.txt