



OMP2001 Result

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IBM Corporation
IBM eServer pSeries 655 (1500 MHz, 8 CPU)

SPECompMpeak2001 = 12739
SPECompMbase2001 = 11627

SPEC license #HPG0005 | Tested by: IBM | Test site: Austin, TX | Test date: Apr-2003 | Hardware Avail: Jul-2003 | Software Avail: May-2003

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	424	14147	424	14147	
312.swim_m	6000	457	13135	431	13933	
314.mgrid_m	7300	1015	7193	1015	7193	
316.applu_m	4000	304	13166	245	16296	
318.galgel_m	5100	288	17708	267	19083	
320.earthquake_m	2600	190	13672	183	14218	
324.apsi_m	3400	244	13944	244	13944	
326.gafort_m	8700	618	14072	620	14041	
328.fma3d_m	4600	606	7587	617	7454	
330.art_m	6400	437	14630	227	28218	
332.ammp_m	7000	1237	5657	1260	5555	

Hardware

CPU: POWER4+
 CPU MHz: 1500
 FPU: Integrated
 CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip, 4 chip/MCM
 CPU(s) orderable: 1 (order by # MCM)
 Primary Cache: 64KBI+32KBD (on chip)/core
 Secondary Cache: 1536KB unified (on chip)/chip
 L3 Cache: 128MB unified (off chip)/MCM, 1 MCM in SUT
 Other Cache: None
 Memory: 32GB
 Disk Subsystem: 1x36GB SCSI, 10K RPM
 Other Hardware: None

Software

OpenMP Threads: 8
 Parallel: OpenMP
 Operating System: AIX 5L V5.2
 Compiler: IBM C for AIX, Version 6.0
 IBM XL FORTRAN for AIX, Version 8.1.0.3
 Other Software: ESSL 3.3, MASS 3.0
 File System: AIX/JFS
 System State: Multi-user

Notes/Tuning Information

Tested by IBM

Portability Flags & Environment 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

ENV_XLFRTEOPTS=NAMELIST=OLD used in: 326.gafort_m

Base Flags

C: -O5 -qalign=natural -qipa=partition=large -qmaxmem=-1

-bmaxdata:0x80000000 -qsmp=omp

FORTRAN: -O5 -qalign=natural -qipa=partition=large -qmaxmem=-1

-bmaxdata:0x80000000 -qsmp=omp

Base & Peak User Environment:

OMP_NUM_THREADS=8

OMP_DYNAMIC=FALSE

XLSPMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC

MALLOCMULTIHEAP=1

Peak Flags

-bmaxdata:0x80000000 used in all cases

-qsmp=omp used in all cases

310.wupwise_m: basepeak=true

312.swim_m: -O3 -qalign=natural -qtune=pwr4 -qarch=pwr4

314.mgrid_m: basepeak=true

316.applu_m: -O3 -qalign=natural -qtune=pwr4 -qarch=pwr4

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Notes/Tuning Information (Continued)

```
318.galgel_m: -O5 -qalign=natural -qhot=arraypad -qessl -qlibessl -lesslsmp
              -lpesslsmp -lblacssmp -lmass -qipa=partition=large -qmaxmem=-1
320.equake_m: -O5 -qalign=natural -qhot=arraypad -Q
324.apsi_m:   basepeak=true
326.gafort_m: -O5 -qalign=natural -qhot=arraypad -qipa=partition=large
              -qmaxmem=-1
328.fma3d_m: -O5 -qalign=natural -qhot=arraypad -qipa=noobject
              -qipa=partition=large -qmaxmem=-1
330.art_m:   -O5 -qalign=natural -qhot=arraypad -Q
332.ammp_m:  -O5 -qalign=natural -qhot=arraypad -Q
```

Peak Sources:

318.galgel_m: eigQR.f90 (for portability to lapack version 3).
Available as SPEC OMP2001 Source: omp2001-galgel-20020117.tar.gz.

SPEC OMPL2001 source for 32bit systems modified for SPEC OMPM2001.
Available as SPEC OMPM2001 Source: ompm2001-srcl32bit-20020925.tar.gz.
For 312.swim_m, 316.applu_m, 320.equake_m, 326.gafort_m.
330.art_m's src.alt is ompm2001-fabs-20030418.tar.gz.

MCM: Acronym for "Multi-Chip Module"

SUT: Acronym for "System Under Test"

C: IBM VAC++ invoked as xlc_r

Fortran 90: IBM XL Fortran for AIX invoked as xlf90_r

APAR IY 43549 was applied to AIX to enable new hardware support.

ulimits set to unlimited.

Memory affinity was set as follows:

```
vmo -r -o memory_affinity=1
shutdown -r
export MEMORY_AFFINITY=MCM
```