



# OMPM2001 Result

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## IBM Corporation

IBM eServer OpenPower 720 (1650 MHz, 4CPU, Linux)

SPECompMpeak2001 = 10522

SPECompMbase2001 = 9664

SPEC license #HPG0005 | Tested by: IBM | Test site: Austin, TX | Test date: Sep-2004 | Hardware Avail: Sep-2004 | Software Avail: Oct-2004

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	465	12891	467	12856	
312.swim_m	6000	775	7738	770	7796	
314.mgrid_m	7300	1366	5343	994	7346	
316.applu_m	4000	250	15976	240	16680	
318.galgel_m	5100	270	18916	234	21750	
320.quake_m	2600	354	7342	266	9785	
324.apsi_m	3400	353	9635	351	9680	
326.gafort_m	8700	907	9594	905	9609	
328.fma3d_m	4600	805	5717	832	5532	
330.art_m	6400	287	22262	286	22364	
332.ammp_m	7000	1418	4937	1203	5817	

### Hardware

CPU: POWER5  
 CPU MHz: 1650  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip (SMT on)  
 CPU(s) orderable: 2,4  
 Primary Cache: 64KBI+32KBD (on chip)/core  
 Secondary Cache: 1920KB unified (on chip)/chip  
 L3 Cache: 36MB unified (off chip)/DCM, 2DCM/SUT  
 Other Cache: None  
 Memory: 16x1 GB  
 Disk Subsystem: 1x72GB SCSI, 15K RPM  
 Other Hardware:

### Software

OpenMP Threads: 8  
 Parallel: OpenMP  
 Operating System: SUSE LINUX Enterprise Server 9 for IBM POWER  
 Compiler: XL Fortran Enterprise Edition Version 9.1 for Linux  
 XL C/C++ Enterprise Edition Version 7.0 for Linux  
 Other Software: IBM Engineering and Scientific Subroutine Library for Linux on POWER, Version 4 Release 2  
 File System: ReiserFS  
 System State: Single-user

## Notes/Tuning Information

Tested by IBM Corporation

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 -q64 -qipa=partition=large -qmaxmem=-1 -qsmp=omp  
 FORTRAN:-O5 -q32 -qipa=partition=large -qmaxmem=-1 -qsmp=omp

Base & Peak User Environment:

OMP\_NUM\_THREADS=8  
 OMP\_DYNAMIC=FALSE  
 ENV\_XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC  
 MALLOCMULTIHEAP=1

Peak Flags

-qsmp=omp used in all cases  
 310.wupwise\_m: -O5 -q64 -qsmp=omp -qipa=partition=large -qmaxmem=-1  
 FC=/opt/ibmcmp/xf/9.1/bin/xf90\_r  
 312.swim\_m: -O5 -q32 -qhot -qarch=pwr5 -qtune=pwr5  
 314.mgrid\_m: -O5 -qsmp=omp -q64 -qipa=partition=large -qmaxmem=-1



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## Notes/Tuning Information (Continued)

```
FC=/opt/ibmcmp/xf/9.1/bin/xf_r
316.applu_m: -O5 -q32 -qarch=pwr5 -qtune=pwr5
318.galgel_m: -O5 -q64 -qipa=partition=large -qmaxmem=-1 -qessl -lesslsm
320.quake_m: -O5 -q32 -qarch=pwr5 -qtune=pwr5 -qhot=arraypad -Q
324.apsi_m: -O4 -q32 -qarch=pwr5 -qtune=pwr5
-qipa=partition=large -qmaxmem=-1
326.gafort_m: -O5 -q32 -qhot=arraypad
-qipa=partition=large -qmaxmem=-1
328.fma3d_m: -O5 -q64 -qalign=natural -qhot=arraypad -qipa=noobject
-qipa=partition=large -qmaxmem=-1
330.art_m: -O4 -q64 -qhot
332.ammp_m: -O5 -q32 -qhot=arraypad -Q
```

### Alternate sources:

Approved src.alt available as ompm-purdue1-20040324.tar.gz  
Used for 330.art\_m, base and peak.

### 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.

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)

DCM: Acronym for "Dual-Chip Module" (one dual-core processor chip + one L3-cache chip)

SUT: Acronym for "System Under Test"

C: IBM XL C for Linux invoked as xlc\_r

Fortran 90 and 77: IBM XL Fortran for Linux invoked as xlf90\_r

Stack size set to unlimited using the command "ulimit -s unlimited".