



# OMP2001 Result

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IBM Corporation

IBM eServer p5 575 (1900 MHz, 8 CPU, Linux)

SPECompMpeak2001 = 25683

SPECompMbase2001 = 23640

SPEC license #HPG0005 | Tested by: IBM | Test site: Austin, TX | Test date: Jan-2005 | Hardware Avail: Feb-2005 | Software Avail: Mar-2005

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	177	33979	169	35444	
312.swim_m	6000	220	27211	221	27156	
314.mgrid_m	7300	546	13367	340	21485	
316.applu_m	4000	108	36995	112	35729	
318.galgel_m	5100	172	29613	145	35267	
320.quake_m	2600	123	21139	105	24868	
324.apsi_m	3400	159	21334	156	21779	
326.gafort_m	8700	333	26091	331	26303	
328.fma3d_m	4600	331	13902	333	13818	
330.art_m	6400	128	49845	130	49151	
332.ammp_m	7000	600	11670	550	12722	

### Hardware

CPU: POWER5  
 CPU MHz: 1900  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 8 chips, 1 core/chip (SMT ON)  
 CPU(s) orderable: 8  
 Primary Cache: 64KBI+32KBD (on chip)/core  
 Secondary Cache: 1920KB unified (on chip)/chip  
 L3 Cache: 36MB unified (off chip)/DCM, 8DCM/SUT  
 Other Cache: None  
 Memory: 64x512 MB  
 Disk Subsystem: 1x73GB SCSI, 15K RPM  
 Other Hardware: None

### Software

OpenMP Threads: 16  
 Parallel: OpenMP  
 Operating System: Red Hat Enterprise Linux AS 4  
 Compiler: XL Fortran Enterprise Edition Version 9.1 for Linux  
 XL C/C++ Enterprise Edition Version 7.0 for Linux  
 Other Software: IBM ESSL for Linux on POWER,  
 Version 4 Release 2  
 File System: EXT2  
 System State: Multi-user, run level 3

## 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  
 export XLFRTOPTIONS=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=16  
 OMP\_DYNAMIC=FALSE  
 XLSMPOPTS=SPINS=0:YIELDS=0:STACK=8000000:SCHEDULE=STATIC  
 MALLOCMULTIHEAP=1  
 Stack size set to unlimited using the command "ulimit -s unlimited".

Peak Flags

-qsmp=omp used in all cases  
 310.wupwise\_m: -O5 -q64 -qipa=partition=large -qmaxmem=-1  
 312.swim\_m: -O5 -q32 -qhot -qarch=pwr5 -qtune=pwr5  
 314.mgrid\_m: -O5 -q64 -qipa=partition=large -qmaxmem=-1



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## Notes/Tuning Information (Continued)

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"Fortran compiler invoked as /opt/ibmcmp/xlf/9.1/bin/xlf_r"
316.applu_m: -O5 -q32 -qarch=pwr5 -qtune=pwr5
318.galgel_m: -O5 -q64 -qipa=partition=large -qmaxmem=-1 -qessl -lesslsmp
320.earthquake_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.earthquake\_m, 326.gafort\_m  
Available as ompl.32 src.alt in SPEC OMP v3.0.

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)

For the 575, only one core is active per chip.

SUT: Acronym for "System Under Test"

ESSL: Engineering and Scientific Subroutine Library

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

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

Flag file: IBM-20050209-Linux.txt