



# OMPM2001 Result

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Hewlett-Packard Company  
AlphaServer ES47 7/1150

SPECompMpeak2001 = 6946

SPECompMbase2001 = 6316

SPEC license #HPG0009 | Tested by: Hewlett-Packard Company | Test site: Marlborough, MA | Test date: Aug-2004 | Hardware Avail: Jul-2004 | Software Avail: Jul-2004

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	1174	5111	671	8937	
312.swim_m	6000	317	18915	279	21480	
314.mgrid_m	7300	928	7869	906	8061	
316.applu_m	4000	475	8423	470	8506	
318.galgel_m	5100	679	7516	698	7308	
320.earthquake_m	2600	631	4122	525	4956	
324.apsi_m	3400	450	7551	466	7294	
326.gafort_m	8700	1929	4510	1726	5040	
328.fma3d_m	4600	1004	4584	954	4821	
330.art_m	6400	939	6813	929	6890	
332.ammp_m	7000	2316	3022	2244	3120	

### Hardware

CPU: Alpha 21364  
 CPU MHz: 1150  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 4 chips, 1 core/chip  
 CPU(s) orderable: 2 to 4  
 Primary Cache: 64KB(I)+64KB(D) on chip  
 Secondary Cache: 1.75MB on chip per core  
 L3 Cache: None  
 Other Cache: None  
 Memory: 4GB per core; 512MB RIMMs; 16GB total  
 Disk Subsystem: 36GB Ultra 160 10KRPM  
 Other Hardware: None

### Software

OpenMP Threads: 4  
 Parallel: OpenMP  
 Operating System: Tru64 UNIX V5.1B + IPK  
 Compiler: HP Fortran V5.5A-3548-48D88  
 Compaq C V6.5-011-48C5K  
 File System: UFS  
 System State: Multi-user

## Notes/Tuning Information

MP\_STACK\_SIZE=10000000  
 4Mb pages used (sysconfigtab)  
 no processor sets used

### Tuning pseudo-switches:

+BPD - Big page disable  
 +PFB - Post-link feedback for prefetches  
 See the flags description or the configuration file for more details.

### Base:

Fortran: f90 -arch ev7 -fast -omp -O5  
 C: cc -arch ev7 -fast -omp -O4  
 alternate source purduel for 330.art\_m

### Peak:

All use -arch host -omp ONESTEP  
 Individual benchmark tuning:  
 310.wupwise\_m: f90 -arch host -omp -call\_shared  
                   -inline all -unroll 12 -align commons  
                   +PFB +BPD  
 alternate source omp1.32  
 312.swim\_m: f90 -arch host -omp -fast -O5



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## Notes/Tuning Information (Continued)

```
+PFB +BPD
PTHREAD_CONFIG=feature=def-scs,d4-scs
alternate source omp1.32

314.mgrid_m: f90 -arch host -omp -O5 -transform_loops
-tune ev7 -unroll 8
+PFB +BPD
PTHREAD_CONFIG=feature=def-scs,d4-scs
alternate source omp1.32

316.applu_m: f90 -arch host -omp -fast -O5 -unroll 14
+PFB
PTHREAD_CONFIG=feature=def-scs,d4-scs
alternate source omp1.32

318.galgel_m: f90 -arch host -omp -fast -unroll 5 -O5

320.equake_m: cc -arch host -omp -fast -call_shared
-O4 -ldensemalloc -assume restricted_pointers
-inline speed -unroll 13
+PFB +BPD
PTHREAD_CONFIG=feature=def-scs,d4-scs
alternate source omp1.32

324.apsi_m: f90 -arch host -omp -O5 -transform_loops
-unroll 8
+PFB
PTHREAD_CONFIG=feature=def-scs,d4-scs
alternate source omp1.32

326.gafort_m: f90 -arch host -omp -fast -O5
-arch ev67 -tune ev67
alternate source omp1.32

328.fma3d_m: f90 -arch host -omp -fast -O4
-transform_loops
+PFB +BPD
PTHREAD_CONFIG=feature=def-scs,d4-scs
alternate source omp1.32

330.art_m: cc -arch host -omp -assume whole_program
-ldensemalloc -call_shared
-assume restricted_pointers -fast -O4 -unroll 16
-inline none
+PFB +BPD
alternate source purdual

332.ammp_m: cc -arch host -omp -O4 -ifo
-assume nomath_errno
-assume trusted_short_alignment -fp_reorder
-readonly_strings -ldensemalloc
-assume restricted_pointers -unroll 9
PTHREAD_CONFIG=feature=def-scs,d4-scs
```

Information on UNIX V5.1B Patches can be found at  
<http://ftpl.service.digital.com/public/unix/v5.1/>



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## Notes/Tuning Information (Continued)

This result was measured on model ES80.  
Model ES47 and model ES80 are electronically equivalent.