



# OMPL2001 Result

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**Hewlett-Packard Company**  
HP Integrity Superdome 64-way (1500 MHz Itanium 2)

SPECompLpeak2001 = 271659  
SPECompLbase2001 = 257702

SPEC license #HPG2116 | Tested by: Hewlett-Packard Company | Test site: Richardson, Texas | Test date: Aug-2003 | Hardware Avail: Oct-2003 | Software Avail: Oct-2003

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio
311.wupwise_1	9200	399	369245	393	374257
313.swim_1	12500	507	394202	507	394202
315.mgrid_1	13500	1008	214301	1008	214301
317.applu_1	13500	726	297382	646	334258
321.quake_1	13000	2938	70791	2932	70931
325.apsi_1	10500	675	248920	490	343044
327.gafort_1	11000	714	246571	714	246571
329.fma3d_1	23500	1345	279499	1345	279499
331.art_1	25000	899	444961	880	454692

### Hardware

CPU: Intel Itanium 2  
CPU MHz: 1500  
FPU: Integrated  
CPU(s) enabled: 64  
CPU(s) orderable: 6 to 64 by 2  
Primary Cache: L1 Inst/Data: 16 KB, associativity = 4  
Secondary Cache: L2 Unified: 256 KB, associativity = 8  
L3 Cache: L3 Unified: 6144 KB, associativity = 24  
Other Cache: None  
Memory: 256GB (512 \* 512MB DIMMs)  
Disk Subsystem: root disk 1x36 SCSI  
9x36GB Fibrechannel (striped)  
Other Hardware: --

### Software

OpenMP Threads: 64  
Parallel: OpenMP  
Operating System: HPUX11i-TCOE B.11.23  
Compiler: HP C/ANSI C Compiler B.11.23  
HP aC++ Compiler B.11.23  
HP Fortran 90 Compiler B.11.23  
HP LIBF90 PHSS\_29620  
HP F90 Compiler PHSS\_29663  
File System: vxfs  
System State: Multi-user

## Notes/Tuning Information

### User environment:

```
MP_IDLE_THREADS_WAIT=-1
OMP_FIRST_USE=0
```

### Base:

```
F90 +Ofaster +DSitanium2 +Oopenmp
+Oinfo +DD64 -minshared
cc +Ofaster +Oopenmp +DD64 +Oinfo +DSitanium2
-minshared -AOe +Ofltacc=default
submit = chatr -s +id disable +pd 64k +pi 64k $commandexe; \
_M_ARENA_OPTS=64:32 _M_SBA_OPTS=16348:150:256 \
mpsched -T FILL $command
```

### Peak:

```
311.wupwise_1: +Ofaster +O3 +DSitanium2 +Oopenmp
ONESTEP = true
+Oinfo +DD64 -minshared +cat -Wl,+pd64k -Wl,+pi64k
submit = chatr -s +id disable $commandexe;
_M_ARENA_OPTS=64:32 mpsched -T FILL $command
```

313.swim\_1: basepeak=true

315.mgrid\_1: basepeak=true

317.applu\_1: +Ofaster +DSitanium2 +Oopenmp +Oinfo



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## Notes/Tuning Information (Continued)

```
+DD64 -minshared
ONESTEP=true
submit = chatr -s +id enable $commandexe;
  _M_ARENA_OPTS=64:32 mpsched -T FILL $command
```

321.equake\_1: basepeak=true

```
325.apsi_1: +Ofaster +DSitanium2 +Oopenmp +Oinfo +DD64 -minshared
submit = chatr -s +id disable +pd 256k +pi 256k $commandexe; _
  M_ARENA_OPTS=64:32 mpsched -T FILL $command
```

327.gafort\_1: basepeak=true

329.fma3d\_1: basepeak=true

```
331.art_1: +Ofaster +Oopenmp +DD64 +Oinfo +DSitanium2
-minshared -AOe +Ofltacc=default
submit = chatr -s +id disable +pd 256k +pi 256k $commandexe;
  _M_ARENA_OPTS=64:32  _M_SBA_OPTS=16348:150:256 mpsched -T FILL $command
```

### Alternate Sources:

```
ifdef version of art
from SPEC Web site  ompl2001-fabs-20030401.tar.gz
used for Base and Peak 331.art_1
```

### Kernel Paramters (/stand/system):

```
maxdsiz      0xc0000000
maxdsiz_64bit 0x3fffbfffff
maxssiz      0x17f00000
maxssiz_64bit 0x40000000
maxtsiz      0x40000000
maxtsiz_64bit 0x40000000
vps_pagesize 4096
vps_ceiling  16384
dbc_min_pct  20
dbc_max_pct  20
swapmem_on   0
```

### Notes:

System was configured with 1/2 of memory interleaved and 1/2 of memory local to each cell

System configured as a single partition with 16 cells and 4 processors per cell

Threads were assigned to cpus using the FILL strategy from the HP-UX mpsched utility

Memory tuning is documented in man page malloc(3C)

```
_M_ARENA_OPTS=64:32
64 malloc arenas, 32 4k pages expansion
_M_SBA_OPTS=16348:150:256
16384 maxfast size, 150 small blocks, 256 grain size
```