



OMPM2001 Result

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Quanta
Quanta QSSC-S4R Server System

SPECompMpeak2001 = 129152
SPECompMbase2001 = 114434

SPEC license #HPG0013 | Tested by: Intel Corporation | Test site: -- | Test date: Mar-2011 | Hardware Avail: Apr-2011 | Software Avail: Jul-2010

Benchmark	Reference Time	Base Runtime	Base Ratio	Peak Runtime	Peak Ratio	
310.wupwise_m	6000	29.4	203806	29.3	204474	
312.swim_m	6000	57.9	103683	53.1	113053	
314.mgrid_m	7300	69.7	104759	67.1	108825	
316.applu_m	4000	18.4	216993	17.2	232111	
318.galgel_m	5100	90.5	56377	66.5	76725	
320.quake_m	2600	31.6	82153	32.5	80108	
324.apsi_m	3400	28.2	120429	28.4	119574	
326.gafort_m	8700	75.1	115899	57.3	151924	
328.fma3d_m	4600	63.5	72483	48.4	94966	
330.art_m	6400	21.9	292760	19.9	321903	
332.ammp_m	7000	105	66872	83.7	83678	

Hardware

CPU: Intel(R) Xeon(R) Processor E7-4870
 CPU MHz: 2400
 FPU: Integrated
 CPU(s) enabled: 40 cores, 4 chips, 10 cores/chip 2 threads/core
 CPU(s) orderable: 1,2,3,4
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 30 MB I+D on chip per chip
 Other Cache: N/A
 Memory: 256 GB (64 x 4 GB DDR3 - 1066 RDIMM)
 Disk Subsystem: Intel RS2BL080 300 GB SATA HDD 10kRPM
 Other Hardware:

Software

OpenMP Threads: 80
 Parallel: OpenMP
 Operating System: Red Hat Enterprise Linux Server release 6.0 (Santiago), kernel 2.6.32-71
 Compiler: Intel C/C++ Compiler 11.1.059 for Linux
 Intel FORTRAN Compiler 11.1.059 for Linux
 GNU C Compiler 4.4.4 20100726
 File System: ext3
 System State: Default

Notes/Tuning Information

BIOS settings notes:

Intel Hyper-Threading Technology (SMT): Enabled
 Intel Turbo Boost Technology (Turbo) : Enabled (Max 2.8 GHz)

Extra Flags:

318.galgel_m: -FI -132
 330.art_m: -DINTS_PER_CACHELINE=16 -DDBLS_PER_CACHELINE=8
 all: -gcc-name=/usr/bin/gcc

General Notes and environment variables

export KMP_LIBRARY=turnaround
 export KMP_STACKSIZE=31M
 export KMP_BLOCKTIME=infinite
 export OMP_DYNAMIC=FALSE
 ONESTEP=yes
 ulimit -s 64000

For compiler/openmp flags description please refer:
 Intel-ic11.1-intel64-linux-flags-file-Mar-15-2011.html



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Notes/Tuning Information (Continued)

Base optimization flags and environment variables:

Medium:

```
OPTIMIZE = -O3 -xSSE4.2 -ipo -openmp
COPTIMIZE = -ansi-alias
export OMP_NUM_THREADS=40
export KMP_AFFINITY=compact,1
```

Peak optimization flags and environment variables:

Medium:

```
OPTIMIZE = -O3 -xSSE4.2 -ipo -openmp -rcd
export KMP_AFFINITY=compact,1
```

Peak per-benchmark optimization flags and environment variables:

310.wupwise_m

```
export OMP_NUM_THREADS=40
```

312.swim_m

```
OPTIMIZE=-O3 -xSSE4.2 -ipo -openmp -opt-streaming-stores always -align -rcd
srcalt = ompl.32
export OMP_NUM_THREADS=40
```

314.mgrid_m

```
OPTIMIZE=-O3 -xSSE4.2 -ipo -openmp -fno-alias -rcd
export OMP_NUM_THREADS=40
```

318.galgel_m

```
FOPTIMIZE=-mkl
RM_SOURCES=lapak.f90
```

320.quake_m

```
export OMP_NUM_THREADS=40
```

324.appsi_m

```
OPTIMIZE=-O3 -xSSE4.2 -ipo -openmp
export OMP_NUM_THREADS=40
```

326.gafort_m

```
srcalt = ompl.32
export KMP_AFFINITY=scatter,0
```

328.fma3d_m

```
FOPTIMIZE=-no-prec-sqrt -fp-model fast=2
srcalt = ompl.32
```



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Notes/Tuning Information (Continued)

```
330.art_m  
  COPTIMIZE>--ansi-alias
```

```
=====
```

```
332.amp_m  
  OPTIMIZE=-O3 -xSSE4.2 -ipo -openmp
```