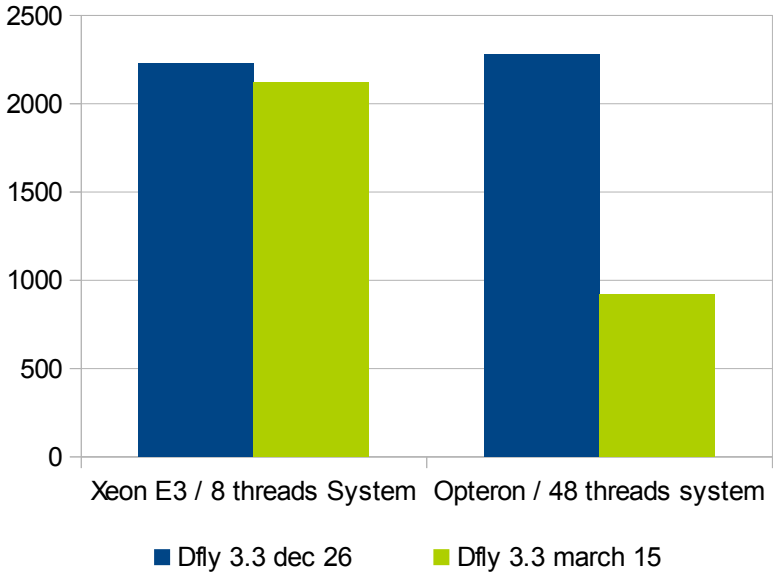
DragonFly Poudriere Performance

Poudriere performance building a full set of 18,796 packages with DragonFly 3.3 kernels from December 26, 2012 and March 15, 2013 on different systems

**Build time in minutes (lower is better)**

| Kernel | Dfly 3.3 dec 26 | Dfly 3.3 march 15 | |
|---|---|---|---|
| Xeon E3 / 8 threads System | 2227 | 2119 | 37h07m vs 35h19m |
| Opteron / 48 threads system | 2278 | 922 | 37h58m vs 15h22m |




Poudriere builds with the kernel from December 26 failed twice on the Xeon system and kept failing every few hours on the Opteron one

The main issues were:
- Complete system freezes due to swap exhaustion
- Build errors due to impossible to unmount tmpfs filesystems

In the end, the December kernel could not complete a full run on the Opteron system and partial numbers were used

Even with a few thousands packages left to build, the march kernel numbers were so much better the comparison still makes sense

**Improvements from December 2012 to March 2013**

**~= 5% faster on the 8 threads system**
**at least 59% faster on the 48 threads system** (the December kernel couldn't complete the benchmark)

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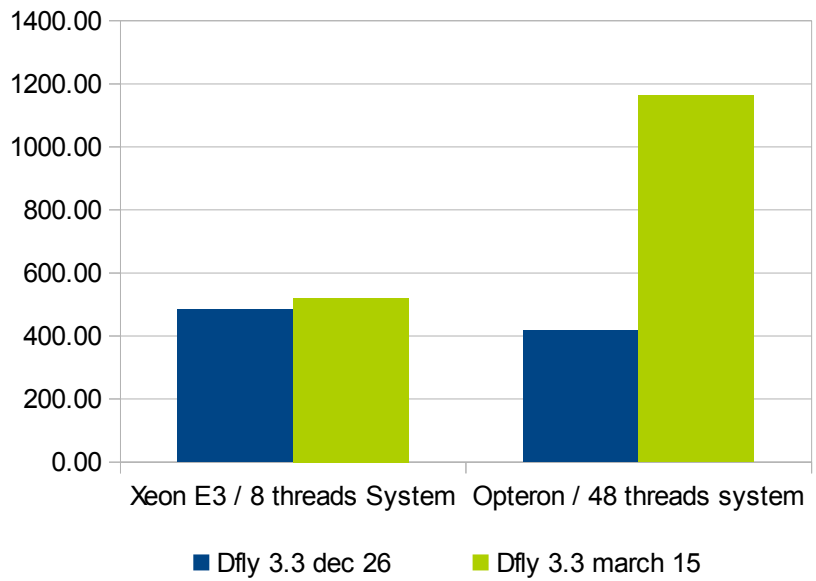
**Average number of packages built per hour (higher is better)**

| Kernel | Dfly 3.3 dec 26 | Dfly 3.3 march 15 |
|---|---|---|
| Xeon E3 / 8 threads System | 483.37 | 519.92 |
| Opteron / 48 threads system | 417.50 | 1163.56 |




**Raw results**

| System | Build time (minutes) | Packages built |
|---|---|---|
| Xeon E3, December kernel | 2227 | 17941 |
| Xeon E3, March kernel | 2119 | 18362 |
| Opteron, December kernel | 2278 | 15851 |
| Opteron, March kernel | 922 | 17880 |

The December kernel could not complete a full run on the Opteron system and partial numbers were used.

Even though individual packages do not build in the same amount of time, taking into account the 2029 remaining packages would not have changed the results by much.
The March kernel was clearly in a different class.

**Improvements from December 2012 to March 2013**

**~= 7% more packages built / hour on the 8 threads system**
**~= 179% more packages built / hour on the 48 threads system**

Smaller scale tests on different machines did show bigger systems consistently experienced bigger scalability improvements.

**Poudriere benchmarks setup**

- The first Dports related commit occurred in December 2012

- Dports was then officially announced on January 2013 in this mail:
  http://lists.dragonflybsd.org/pipermail/users/2013-January/017795.html

DragonFly-3.3 already benefitted from SMP performance enhancements at this date.
Since dports doesn't run on DragonFly 3.2, we had to compare the march 3.3 systems to this early 3.3 version instead.

The December 2012 kernel version used was at least as fast as DragonFly 3.2.
DragonFly 3.4 is at least as fast as the March 2013 kernel version.

**Common test environment**

- poudriere-2.3_12 from dports
- Poudriere Dports: as of 2013-03-18 commit e5fc115cc9b86c098e73245aadf0e4495b715298
- Poudriere DragonFly world as of 2013-03-15 commit 8a2db35a8aae8fe1dd9a37bd5e7e316c9aaf8a7d
- html stats generation disabled

**Xeon E3 system**

- 1x Xeon E3-1345v2 CPU: 4x 3.4 GHz Ivy-Bridge cores, 2 threads / core, turbo-boost up to 3.8 GHz
- 8 builder jails - 16GB RAM
- 1 make job per jail

**Opteron system**

- 4x Opteron 6168 CPUs: 48 1.9 GHz K8 cores, 1 thread / core, no turbo boost
- 60 poudriere builder jails - 64GB RAM
- Up to 3 make jobs per jail

**First DragonFly 3.3 kernel version**

commit 64d65b88fc1c05e66cfd6c890900cb5c3cd8d1a2
Author: John Marino <draco@marino.st>
Date: Wed Dec 26 16:13:39 2012 +0100

Add native dports support

**Second DragonFly 3.3 kernel version**

commit 8a2db35a8aae8fe1dd9a37bd5e7e316c9aaf8a7d
Author: Sepherosa Ziehau <sephe@dragonflybsd.org>
Date: Fri Mar 15 17:44:11 2013 +0800

route(8): Fix a possible infinite loop in "route flush"