

From: richf
 To: richf
 Subject: Compression Benchmarks
 Date: Friday, April 24, 1992 04:37PM

Date: Fri Apr 24 15:41:37 PDT 1992

From: Ben Sivka <bens@microsoft.com>
 Date: Fri Apr 17 1992 18:08:46

\\pyrex\user\bens\compare.xls is an Excel 4.0 spreadsheet with the detailed results and a few 3D bar charts. Here are the high points:

- 1) IIT beats or matches everyone at app performance.
- 2) Except for file create time, IIT "clobbers" all the other programs.
- 3) IIT "appears" to have better compression, too (see Note (1) below)!

NOTE: IIT and InfoChip appear to be "different" companies. Their business addresses are different, for example. We'll find out for sure when MackM calls IIT on Monday!

All times in seconds.
 All tests run with 2M SmartDrv v4.0 installed.
 DOS = Plain DOS, no compression.
 IIT = Beta XtraDrv software.
 Stac 2.0 = Retail Stacker v2.0
 DD 3.0 = Beta Double Disk v3.0
 DD 2.6 = Retail Double Disk v2.6

	DOS	IIT	Stac 2	DD 3.0	DD 2.6
Free Memory	607,424	556,976	565,648	567,120	565,936
Compress Ratio	1.00	1.7(1)	1.64	1.54	1.55
PC Word 5.0	268.64	(2)	277.10	297.69	299.56
Excel 2.1	309.12	471.65	474.39	643.78	650.53
dBase IV v1.0	252.06	320.00	399.14	541.78	560.84
QC 2.01	118.37	141.16	155.99	225.03	229.81

Notes: (1) IIT utilities claimed 1.9:1 at first, but the only way to verify this is to fill up the disk. JimLa didn't fill it up completely, but it seems to be approach 1.7:1 at the time of this writing.
 (2) PC Word failed to start under IIT.

Atomic tests (PC Bench v5.1)

	DOS	IIT	Stac 2	DD 3.0	DD 2.6
512b I/O Total	6.15	9.04	13.31	49.53	46.78
4Kb I/O Total	1.98	4.74	2.78	10.22	9.46
16Kb I/O Total	1.16	5.42	5.43	8.84	9.42

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32Kb I/O Total 1.29 5.69 6.18 9.17 9.87

Long, but don't miss the last paragraph...

This week we've talked multiple times with Double Disk engineers on the phone and spent a lot of time evaluating their product. Bottom line:

Compression technology:

They use essentially the same filesystem manipulation scheme as stac. They are not quite as good as Stacker at compression ratios. Some of this may be the actual algorithm they use. I also suspect that they are not quite as clever at how they store things on the disk. They definitely do not do everything stacker does. They only support 8K clusters and they have a strange means of handling a discontinuous container file (as opposed to Stac who ships a defragger in their setup so that this is a non-issue.)

Setup and Utilities:

These are not ready for prime-time. There is a fair amount of work needed on the actual function and the visuals. They have taken the easy way out on display detection, partition detection, etc. and the result is more questions and repetition for the user.

Performance:

In synthetic I/O and application-based benchmarks they are considerably (> 20%, sometimes > 50%) slower than stacker - even with their new caching.

Reliability:

They pass all of our basic PS testcases. Bens did experience one data corruption. More testing is needed to really know how solid they are. A lot of testing of their utilities will also be required.

Overall Impression - Recommendation:

I think we would need to invest heavily in these guys to get them competitive with Stac. This would mean significant development and test resources and more importantly a significantly long time to market. We (Bens and me) are flying down to meet with their lead engineer next wednesday. Unless we discover something drastic

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(like they gave us the wrong diskettes), I think it is worth investigating other alternatives.

Possibilities:

Infochip has talked to us in the past. They have an Int 2F filesystem which provides a non-fat compressed filesystem. IIT has been a real pain bugging us to consider a deal with them. they have a non-fat compression-based filesystem also. For grins we ran the benchmarks on their beta 1 (that they sent me a couple months ago, and I haven't gotten around to trying yet) today. Results were significantly higher compression ratios and, on average, approx 30% better performance than stacker! I think ben and I will go visit them next week also...

From: bens
To: bradc; bradsi; jimla; mackm; richf
Cc: davidma; ericst
Subject: Latest Double Disk driver is faster than Stac 2.0!
Date: Thursday, April 30, 1992 06:16PM

X-MSMail-Message-ID: 2757BB30
X-MSMail-Conversation-ID: 2757BB30
X-MSMail-Fixed-Font: 0001
X-MSMail-WiseRemark: Microsoft Mail -- 1.0.594
From: Ben Sivka <bens@microsoft.com>
Date: Thu Apr 30 1992 17:51:30

Results of testing of Latest Double Disk driver, tested WITHOUT any SmartDrive. Tests hang with SmartDrive installed!?! Thanks to JimLa for the speedy measurements!

Observations about latest DD 3.0 driver:

- 1) It is significantly faster (20%) than Stac 2.0 at running dBase and QC 2.01. It is a bit slower (2%) running Excel 2.1.
- 2) It takes 2K more RAM than Stac 2.0 (they grow 3.5K from their previous drop).
- 3) It is 10% slower at 512b and 4Kb I/O than Stac 2.0, but nearly twice as fast at 16Kb and 32Kb I/O.

Notes:

- [1] No data available on compression ratio -- DD3 tools do not work on DD3+ driver. (curious...)
- [2] DD3+ (latest DD drop) failed to run PC Word 5.0. It hung when running the test macro.
- [3] Like DD3+, IIT hangs when running the PC Word 5.0 test macro.
- [4] Total of app scenarios does not include PC Word, since DD3+ and IIT did not run it successfully.

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called me today (I have kept the dialog open) and made another offer. \$2M one time fee and we get their current source and can do whatever we want with it. no attribution. He also told me again they are doing a version for Netware servers. Recall we eliminated SuperStar (Addstar), b/c we can not control the technology. Their contract with DR DOS is either 3 or 4 years and DR gets right to improvements Addstar makes along the way. At the end of the contract DR may continue to ship the compression they last got. They may not modify the code, but they can keep shipping the last improvement Addstar gave them b4 contract expiration.

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