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2011年04月 (4)
2011年03月 (13)

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计算机体系结构及汇编   (973)
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linux命令行下中文文件名 (820)
Linux/Unix Display   (516)

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原 CLAPACK配置错误安装方法

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目录(?)   [+]

CLAPACK 3.2.1 xeigtstz fails

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5 posts • Page **1** of **1**

CLAPACK 3.2.1 xeigtstz fails

📄 by **DouglasD** » Thu Aug 13, 2009 11:35 am

I am trying to build CLAPACK for multiple OSs. Fedora Core 6 (x86) with gcc 4.1.1 basically worked well using the provided make.inc.example as make.inc, the only change was to use -DNO_BLAS_WRAP. The reference BLAS had no errors and the only "failures" on LAPACK were:

./zsep.out: ZST drivers: 1 out of 11664 tests failed to pass the threshold

./dsep.out: DST: 1 out of 4662 tests failed to pass the threshold

./dsep.out: DST drivers: 1 out of 14256 tests failed to pass the threshold

./dsep.out: DST drivers: 1 out of 14256 tests failed to pass the threshold

./dsep.out: DST drivers: 1 out of 14256 tests failed to pass the threshold

./ssep.out: SST: 1 out of 4662 tests failed to pass the threshold

./ssep.out: SST: 1 out of 4662 tests failed to pass the threshold

./zgd.out: ZXV drivers: 24 out of 5000 tests failed to pass the threshold

./csep.out: CST drivers: 1 out of 11664 tests failed to pass the threshold

./csep.out: CST: 1 out of 4662 tests failed to pass the threshold

./sgd.out: SXV drivers: 37 out of 5000 tests failed to pass the threshold

./dgd.out: DXV drivers: 200 out of 5000 tests failed to pass the threshold

zgd, sgd and dgd are called out in the installation hints, however the others I cannot find information on if they are "acceptable".

Taking the same distribution to YellowDog 4 on PPC with gcc 3.3.3 I had numerous problems. I varied optimization levels:

-funroll-all-loops -O2: assembler errors

gcc -DNO_BLAS_WRAP -funroll-all-loops -O2 -c dgbtrf.c

/tmp/ccgVhMg3.s: Assembler messages:

/tmp/ccgVhMg3.s:336: Error: operand out of range (0000000000007ff8 not between 0 and 31)

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/tmp/ccgVhMg3.s:336: Error: syntax error; found `(' but expected `,'

/tmp/ccgVhMg3.s:336: Error: junk at end of line: `(11)'

/tmp/ccgVhMg3.s:338: Error: operand out of range (0000000000007ff8 not between 0 and 31)

/tmp/ccgVhMg3.s:338: Error: syntax error; found `(' but expected `,'

/tmp/ccgVhMg3.s:338: Error: junk at end of line: `(11)'

make[1]: *** [dgbtrf.o] Error 1

-O2: xeigtstz crash and has more "failures" than x86

NEP: Testing Nonsymmetric Eigenvalue Problem routines

./xeigtstz < nep.in > znep.out 2>&1

make[1]: *** [znep.out] Error 139

-O1: assembler errors:

gcc -DNO_BLAS_WRAP -O1 -c dgbtrf.c

/tmp/ccSTo2Vw.s: Assembler messages:

/tmp/ccSTo2Vw.s:248: Error: operand out of range (0000000000007ff8 not between 0 and 31)

/tmp/ccSTo2Vw.s:248: Error: syntax error; found `(' but expected `,'

/tmp/ccSTo2Vw.s:248: Error: junk at end of line: `(9)'

/tmp/ccSTo2Vw.s:250: Error: operand out of range (0000000000007ff8 not between 0 and 31)

/tmp/ccSTo2Vw.s:250: Error: syntax error; found `(' but expected `,'

/tmp/ccSTo2Vw.s:250: Error: junk at end of line: `(9)'

make[1]: *** [dgbtrf.o] Error 1

-O0: xeigtstz crash still however the "failures are more in line with FC6/gcc4.1.1:

./sgd.out: SXV drivers: 38 out of 5000 tests failed to pass the threshold

./csep.out: CST drivers: 1 out of 11664 tests failed to pass the threshold

./csep.out: CST: 1 out of 4662 tests failed to pass the threshold

./csep.out: CST: 1 out of 4662 tests failed to pass the threshold

./dgd.out: DXV drivers: 201 out of 5000 tests failed to pass the threshold

./dsep.out: DST: 1 out of 4662 tests failed to pass the threshold

./dsep.out: DST: 1 out of 4662 tests failed to pass the threshold

./dsep.out: DST drivers: 1 out of 14256 tests failed to pass the threshold

Here is the test failing with the seg fault

NEP: Testing Nonsymmetric Eigenvalue Problem routines

./xeigtstz < nep.in > znep.out 2>&1

make[1]: *** [znep.out] Error 139

Two questions:

Any thoughts on the xeigtstz failure. It seg faults at start in zchkee.c, here is a gdb session for the crash:

gdb xeigtstz -c core.22623

GNU gdb Red Hat Linux (6.0post-0.20040223.19.ydl.1rh)

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This GDB was configured as "ppc-yellowdog-linux-gnu"...Using host libthread_db library

"/lib/tls/libthread_db.so.1".

Core was generated by `./xeigtstz'.

Program terminated with signal 11, Segmentation fault.

Reading symbols from /lib/tls/libm.so.6...done.

Loaded symbols for /lib/tls/libm.so.6

Reading symbols from /lib/tls/libc.so.6...done.

Loaded symbols for /lib/tls/libc.so.6

Reading symbols from /lib/ld.so.1...done.

Loaded symbols for /lib/ld.so.1

#0 0x10000d64 in MAIN__ () at zchkee.c:78

78 {

(gdb)

And the second question:

Are the "failures" acceptable or is there additional work to do?

Thanks

Doug

[DouglasD]

> **Posts:** 2

> **Joined:** Wed Aug 12, 2009 4:03 pm

Top

Re: CLAPACK 3.2.1 xeigtstz fails

⬚ by **admin** » Thu Aug 13, 2009 11:44 am

Doug, the failures you see are fine, they are just numerical failures that we are aware of.

Regarding the crash of XEIGTSTZ, it is due to a stack size to small.
Try to do a

Code: Select all

```
    ulimit -s 65000
```

before running the testing.

Let me know if it helps.

admin

> Site Admin

> **Posts:** 241

> **Joined:** Wed Dec 08, 2004 7:07 pm

Top

Re: CLAPACK 3.2.1 xeigtstz fails

⬚ by **DouglasD** » Thu Aug 13, 2009 2:11 pm

Thank you, that "fixed" the seg fault and the build.

Changing ulimit and rebuilding from scratch got a clean reference blas test and only these "failures" which you

said are expected:

./sgd.out: SXV drivers: 38 out of 5000 tests failed to pass the threshold

./zsep.out: ZST: 1 out of 4662 tests failed to pass the threshold

./csep.out: CST drivers: 1 out of 11664 tests failed to pass the threshold

./csep.out: CST: 1 out of 4662 tests failed to pass the threshold

./csep.out: CST: 1 out of 4662 tests failed to pass the threshold

./zgd.out: ZXV drivers: 24 out of 5000 tests failed to pass the threshold

./dgd.out: DXV drivers: 201 out of 5000 tests failed to pass the threshold

./dsep.out: DST: 1 out of 4662 tests failed to pass the threshold

./dsep.out: DST: 1 out of 4662 tests failed to pass the threshold

./dsep.out: DST drivers: 1 out of 14256 tests failed to pass the threshold

Is it worth going back and trying other optimzation levels. I know -O3 is out because the reference blas then report erroneous machine limits, but do you think it's worth trying the others? At what level do you begin to worry about the number of tests that fail to pass the threshold?

Thanks

Doug

DouglasD

Posts: 2
Joined: Wed Aug 12, 2009 4:03 pm

Top

Re: CLAPACK 3.2.1 xeigtstz fails

🗋 by **admin** » Thu Aug 13, 2009 2:18 pm

> Is it worth going back and trying other optimzation levels. I know -O3 is out because the reference blas then report erroneous machine limits, but do you think it's worth trying the others? At what level do you begin to worry about the number of tests that fail to pass the threshold?

No the optimization level won't fix it.

But you should try to use a optimized BLAS library (ACML, MKL, GOTO, ATLAS etc...).
Reference BLAS gives very poor performance.

admin

Site Admin

Posts: 241
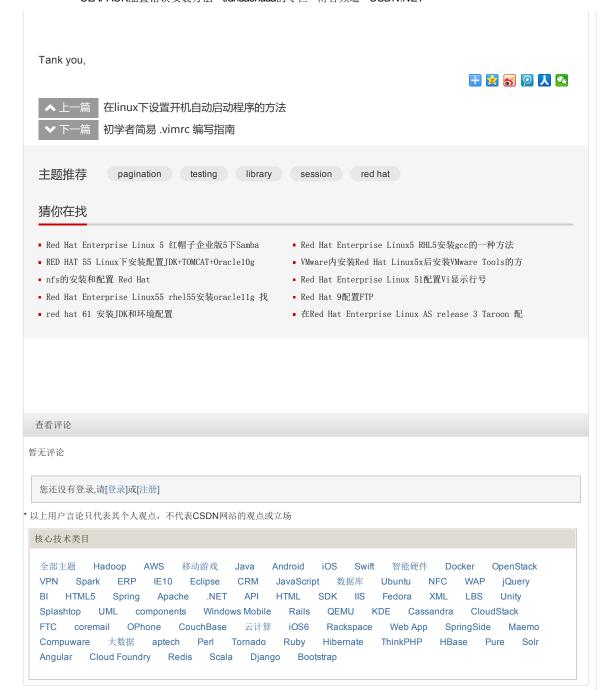**Joined:** Wed Dec 08, 2004 7:07 pm

Top

Re: CLAPACK 3.2.1 xeigtstz fails

🗋 by **aaronsmith** » Sat Dec 19, 2009 12:45 pm

Hi!

I am also see that the optimization level won't fix it.
and it's right that Reference BLAS gives very poor performance.

Tank you,

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