Computer Algebra Independent Integration Tests

Nasser M. Abbasi

April 1, 2017   compiled on --- Saturday April 01, 2017 at 01:17 AM [public]

These reports and the web pages themselves are written in LATEX using TeXLive distribution on Linux and compiled to HTML using TeX4ht.

1. Mathematica 11.1, Rubi 4.11, Maple 2016.2, Mupad 7.0, Sympy 1.0 [63,648 integrals (not completed yet))]

2. Mathematica 11.0, Rubi 4.9.8, Maple 2016 and Mupad 7.0 (Matlab 2016a) [58,469 integrals]

3. Mathematica 10.4, Rubi 4.9, Maple 2016 and Mupad 7.0 (Matlab 2016a) [58,469 integrals]
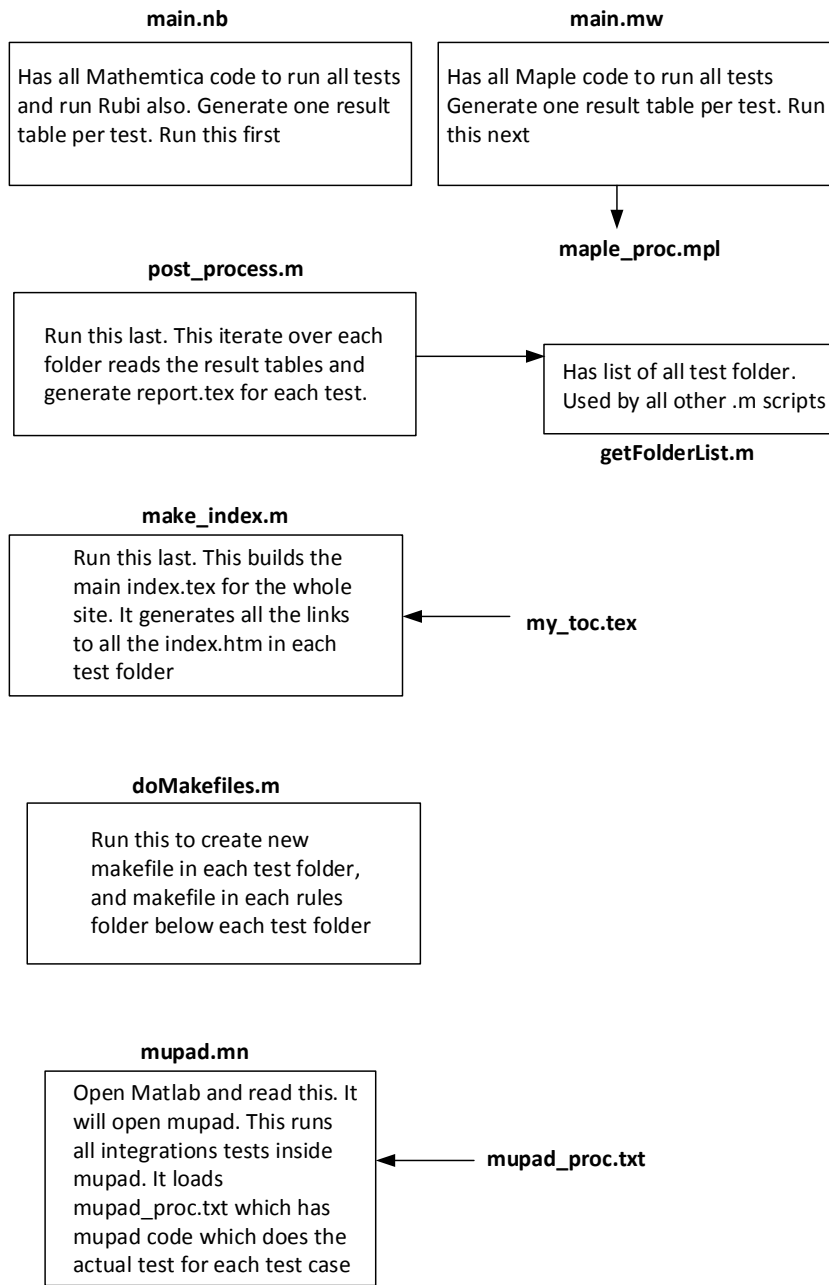
1 Note on build system

The following diagram gives a high level view of the current test build system.
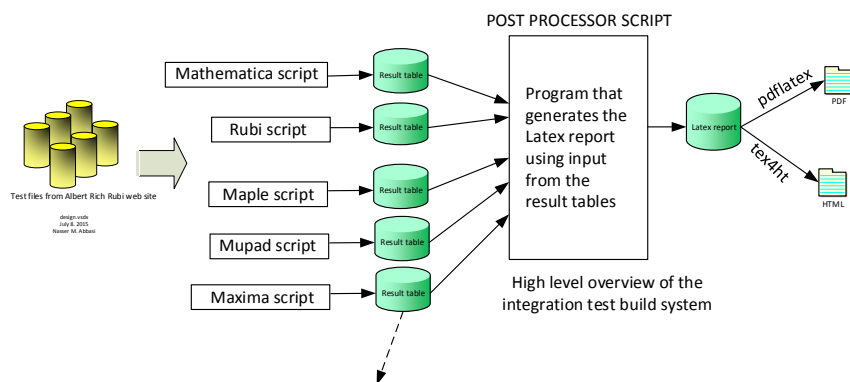
One record (line) per one integral result. The line is comma delimited. It contains 12 fields. This is description of each record (line)

1. integer, the problem number.
2. integer. 0 or 1 for failed or passed. (this is not the grade field)
3. integer. Leaf size of result.
4. integer. Leaf size of the optimal antiderivative.
5. number. CPU time used to solve this integral. 0 if failed.
6. string. The integral in Latex format
7. string. The input used in CAS own syntx.
8. string. The result (antiderivative) produced by CAS in Latex format
9. string. The optimal antiderivative in Latex format.
10. integer. 0 or 1. Indicates if problem has known antiderivative or not
11. String. The result (antiderivative) in CAS own syntax.
12. String. The grade of the antiderivative. Can be "A", "B", "C", or "F"

Main Files used

main.nb

Has all Mathemtica code to run all tests and run Rubi also. Generate one result table per test. Run this first

main.mw

Has all Maple code to run all tests Generate one result table per test. Run this next

maple_proc.mpl

post_process.m

Run this last. This iterate over each folder reads the result tables and generate report.tex for each test.

Has list of all test folder. Used by all other .m scripts

getFolderList.m

make_index.m

Run this last. This builds the main index.tex for the whole site. It generates all the links to all the index.htm in each test folder

my_toc.tex

doMakefiles.m

Run this to create new makefile in each test folder, and makefile in each rules folder below each test folder

mupad.mn

Open Matlab and read this. It will open mupad. This runs all integrations tests inside mupad. It loads mupad_proc.txt which has mupad code which does the actual test for each test case

mupad_proc.txt

Main files and scripts used in the build

2 My PC during running the tests

I really need a faster PC with much more RAM !
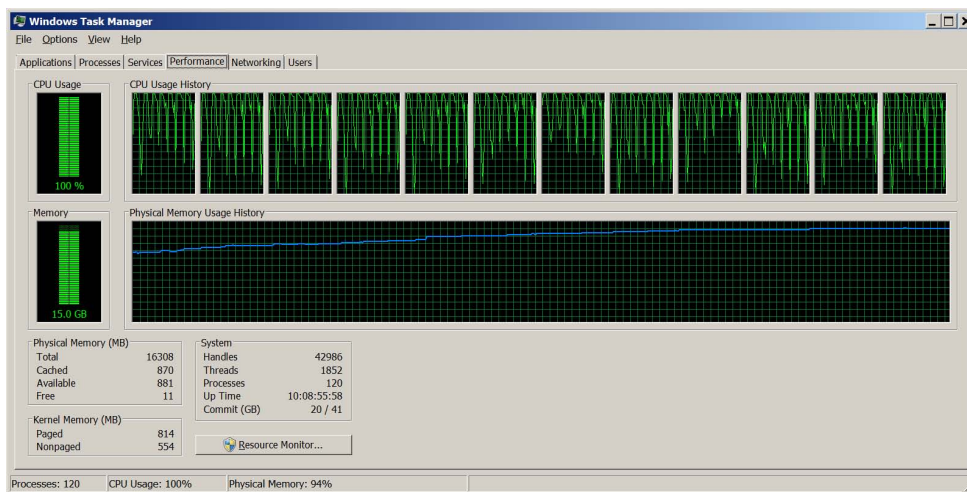
This below shows example of CAS suddenly consuming all RAM in PC, and I had to terminate the process, since it did not time out as instructed, and just hanged.