|  |  |  |
| --- | --- | --- |
| Data 57\* 57 | | |
| Approach | Time(microseconds) | witout eigen optimizer |
| Eigen | 630 | 900-1200 |
| Krylov 30 | 250 | 300-700 |
| Krylov 25 | 170-210 | 189-400 |
| Krylov 20 | error>tolerance |  |
| *-march=native* |  | 157-330 |

|  |  |
| --- | --- |
| DATA 118\*118 | |
| Approach | Time(microseconds) |
| Eigen | 3265 |
| Krylov 50 | 753 |
| Krylov 40 | 480 |
| Krylov 35 | Large error>tolerance |
| *-march=native* | 0.0034 |

|  |  |
| --- | --- |
| DATA 160\*160 | |
| Approach | Time(microseconds) |
| Eigen | 6700-7174 |
| Krylov 50 | 850-1000 |

**Note:**

1. *m size: ½ - 1/3 of original size*
2. *Add Eigen optimizer in Visual Studio-march=native*
3. *Any more recent improvement on this area?*
4. *~~We use~~* ~~[~~*~~first Krylov A, then exp(T\*Hm)~~*~~]~~*~~,~~* ~~better than [~~*~~first~~**~~krylov T\*A, then exp(Hm)~~*~~]~~
5. *~~-O3 optimizer == release version in Visual Studio~~*
6. *~~With or without the Eigen optimizer? How to add Eigen optimizer in Visual Studio, vectorize~~*

* *~~How to set the size of compact matrix m? see page 459 of the book, h\_j+1,j <= tol \* ||A|| Tol 0.005 ||A|| =~~*
* *~~Upper Hessenberg Matrix setting,~~* ***~~DONE~~***
* *~~Is the EIGEN Hessenberg is same as what we did? Is any way to get Vm also by EIGEN:~~* ***~~NO~~****~~, same size of EIGEN’s version.~~*

*-march=native*

<https://stackoverflow.com/questions/52653025/why-is-march-native-used-so-rarely>