

| Run times in seconds. program version in column A and optimization level in row. | | | | |
|--|-----------------|-------------|-----------------|--|
| | no optimization | -O | -O2 --fast-math | |
| original | 436.83 | 234.85 | 0.934 | |
| change 1 | 191.64 | 171.15 | 0.938 | |
| change 2 | 121.27 | 109.5 | 0.002 | |
| change 2 + mp | 27.92 | 22.15 | 0.001 | |
| | | | | |
| Speed up of each version relative to the original | | | | |
| original | 1 | 1 | 1 | |
| change 1 | 2.279430182 | 1.372188139 | 0.9957356077 | |
| change 2 + mp | 3.602127484 | 2.144748858 | 467 | |
| change 2 + mp | 15.64577364 | 10.6027088 | 934 | |
| | | | | |
| | 4.343481375 | 4.943566591 | | |