|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Data Layout | Precision | Vectorization | Pmeasured | Vmeasured | B = Pmeasured \* Vmeasured | Runtime (sec) |
| SOA | Single | AVX | 189.96/12.38 = 15.344 | 104.82/12.38 = 8.4668 | 129.91 | 12.38 |
| SOA | Single | SSE | 513.3/31.653 = 16.216 | 104.82/31.653 = 3.311 | 53.69 | 31.653 |
| AOS | Single | AVX | 2462.7/153.92 = 15.990 | 108.52/153.92 = 0.705 | 11.272 | 153.92 |
| AOS | Single | SSE | 871.84/56.48 = 15.431 | 108.52/56.48 = 1.921 | 29.642 | 56.48 |
| SOA | Double | AVX | 476.23/31.413 = 15.160 | 102.325/31.413 = 3.257 | 49.376 | 31.413 |
| SOA | Double | SSE | 1123.2/70.966 = 15.827 | 102.325/70.966 = 1.441 | 22.806 | 70.966 |
| AOS | Double | AVX | 974.82/60.929 = 15.999 | 92.136/60.929 = 1.512 | 24.190 | 60.929 |
| AOS | Double | SSE | 1484.9/92.418 = 16.06 | 92.136/92.418 = 0.996 | 16.010 | 92.418 |

icc -O2 Multiply.c -o NoVectMult

icc -O2 -no-vec Multiply.c -o NoVectMult

icpdblsoaavx.exe



Man icc

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Data Layout | Precision | Vectorization | Pmeasured | Vmeasured | Epar = Pmeasured/#cores | Evec = Vmeasured /Videal | E |
| SOA | Single | AVX | 189.96/12.38 = 15.344 | 104.82/12.38 = 8.4668 | 0.959 | 1.05835 | 1.0149097 |
| SOA | Single | SSE | 513.3/31.653 = 16.216 | 104.82/31.653 = 3.311 | 1.0135 | 0.827 | 0.8381645 |
| AOS | Single | AVX | 2462.7/153.92 = 15.990 | 108.52/153.92 = 0.705 | 0.999 | 0.088 | 0.07992 |
| AOS | Single | SSE | 871.84/56.48 = 15.431 | 108.52/56.48 = 1.921 | 0.964 | 0.24 | 0.23136 |
| SOA | Double | AVX | 476.23/31.413 = 15.160 | 102.325/31.413 = 3.257 | 0.947 | 0.814 | 0.770858 |
| SOA | Double | SSE | 1123.2/70.966 = 15.827 | 102.325/70.966 = 1.441 | 0.989 | 0.495 | 0.489555 |
| AOS | Double | AVX | 974.82/60.929 = 15.999 | 92.136/60.929 = 1.512 | 0.999 | 0.378 | 0.377622 |
| AOS | Double | SSE | 1484.9/92.418 = 16.06 | 92.136/92.418 = 0.996 | 1.003 | 0.5015 | 0.5030045 |