Exploiting the Streaming SIMD Extension (SSE)

The efficiency of my solutions for efficient dot-product is tested on hydra21 using test.c with the array sizes of 32768, 65536, 131072, and 262144. The following table and the bar graph contain the timing results for 4 dot-product implementations and 4 array sizes.

	32768	*65536*	*131072*	*262144*
Regular	0.05683	0.11216	0.22483	0.44966
Loop Unrolled	0.05500	0.11016	0.22400	0.44266
Accumulator Expansion	0.01666	0.03283	0.06783	0.13150
SSE Intrinsics	**0.01366**	**0.02750**	**0.05516**	**0.11183**

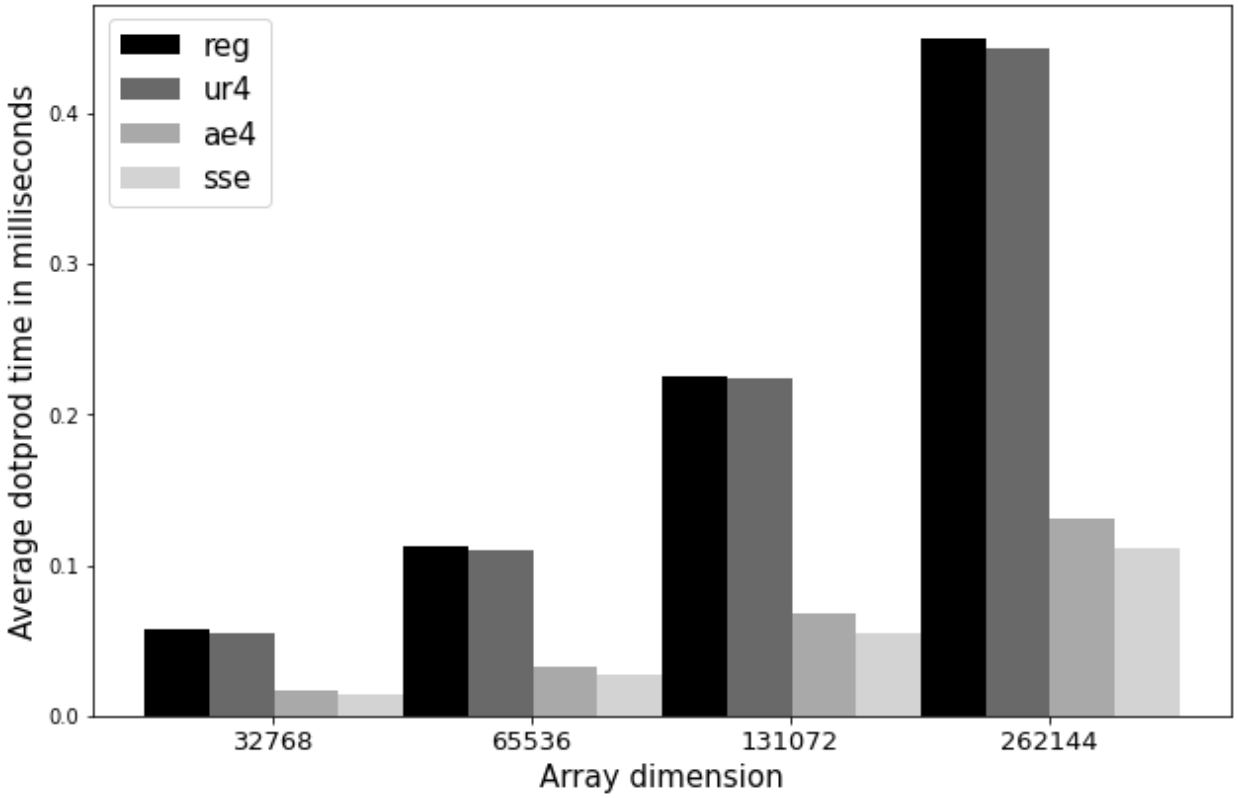

Figure: Bar graph of the timing results for four dot-product implementations and four array sizes

We can see from the results that dot-product with SSE Intrinsics is the most efficient one as it takes the least amount of time for all array dimensions.