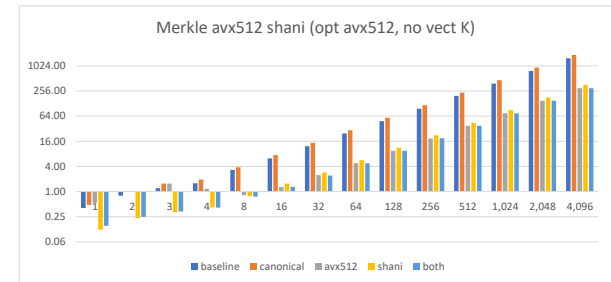
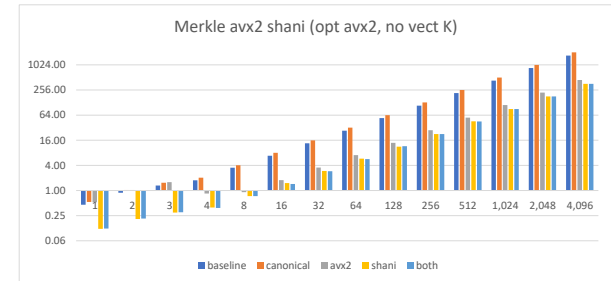


Libbitcoin hash algorithm performance measurements

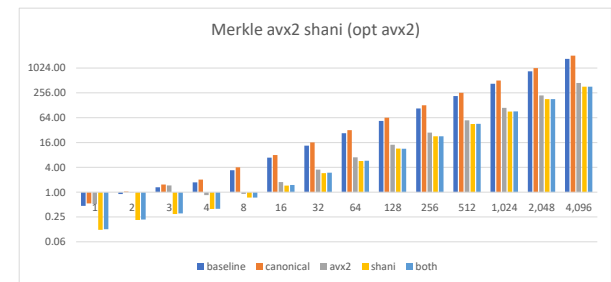
avx512, shani (opt avx512) -k	baseline	none	vector	native	both	vector	baseline	canonical	avx512	shani	both	both	canonical	optimal
1	0.0041	0.0049	0.0055	0.0013	0.0015	113%	0.40	0.48	0.54	0.12	0.15	123%	119%	31%
2	0.0081	0.0100	0.0100	0.0024	0.0025	100%	0.79	0.97	0.97	0.23	0.25	107%	122%	25%
3	0.0123	0.0159	0.0160	0.0033	0.0034	100%	1.20	1.56	1.56	0.32	0.33	105%	130%	21%
4	0.0162	0.0199	0.0118	0.0043	0.0042	59%	1.58	1.94	1.15	0.42	0.41	99%	123%	21%
8	0.0339	0.0391	0.0084	0.0079	0.0078	21%	3.31	3.81	0.82	0.77	0.76	98%	115%	20%
16	0.0637	0.0761	0.0132	0.0159	0.0132	17%	6.22	7.43	1.28	1.55	1.29	83%	119%	17%
32	0.1247	0.1503	0.0253	0.0294	0.0247	17%	12.18	14.68	2.47	2.87	2.42	84%	121%	16%
64	0.2513	0.3007	0.0491	0.0577	0.0487	16%	24.54	29.36	4.80	5.64	4.75	84%	120%	16%
128	0.4960	0.5968	0.0967	0.1149	0.0968	16%	48.44	58.28	9.44	11.22	9.46	84%	120%	16%
256	0.9892	1.1990	0.1915	0.2284	0.1936	16%	96.60	117.09	18.70	22.30	18.91	85%	121%	16%
512	2.0050	2.3931	0.3869	0.4583	0.3840	16%	195.80	233.70	37.78	44.75	37.50	84%	119%	16%
1,024	3.9575	4.7891	0.7686	0.9164	0.7676	16%	386.47	467.68	75.06	89.49	74.96	84%	121%	16%
2,048	7.9011	9.5717	1.5363	1.8302	1.5336	16%	771.59	934.74	150.03	178.73	149.77	84%	121%	16%
4,096	15.9858	19.1385	3.0735	3.6599	3.0682	16%	1561.11	1868.99	300.15	357.41	299.63	84%	120%	16%



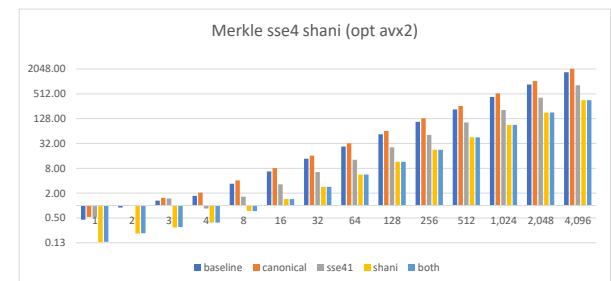
avx2, shani (opt avx2) -k	baseline	none	vector	native	both	vector	baseline	canonical	avx2	shani	both	both	canonical	optimal
1	0.0047	0.0054	0.0054	0.0012	0.0013	99%	0.45	0.53	0.52	0.12	0.12	102%	117%	23%
2	0.0090	0.0106	0.0106	0.0021	0.0022	100%	0.88	1.03	1.03	0.21	0.21	102%	117%	21%
3	0.0135	0.0157	0.0163	0.0030	0.0031	104%	1.32	1.53	1.59	0.30	0.30	102%	116%	20%
4	0.0179	0.0207	0.0087	0.0040	0.0039	42%	1.75	2.02	0.85	0.39	0.38	98%	116%	19%
8	0.0361	0.0413	0.0093	0.0075	0.0075	23%	3.52	4.03	0.91	0.74	0.73	100%	115%	18%
16	0.0698	0.0820	0.0181	0.0154	0.0147	22%	6.82	8.01	1.76	1.51	1.43	95%	118%	18%
32	0.1380	0.1632	0.0362	0.0302	0.0296	22%	13.48	15.93	3.54	2.95	2.89	98%	118%	18%
64	0.2780	0.3278	0.0725	0.0593	0.0581	22%	27.15	32.01	7.08	5.79	5.67	98%	118%	18%
128	0.5539	0.6545	0.1423	0.1148	0.1175	22%	54.10	63.92	13.90	11.21	11.48	102%	118%	18%
256	1.1072	1.3182	0.2837	0.2300	0.2311	22%	108.13	128.73	27.70	22.46	22.57	100%	119%	18%
512	2.2101	2.6139	0.5685	0.4636	0.4627	22%	215.83	255.26	55.52	45.27	45.18	100%	118%	18%
1,024	4.4072	5.2269	1.1390	0.9203	0.9203	22%	430.39	510.43	111.23	89.87	89.88	100%	119%	18%
2,048	8.7994	10.4700	2.2680	1.8392	1.8412	22%	859.32	1022.46	221.49	179.61	179.81	100%	119%	18%
4,096	17.5652	20.8819	4.5388	3.6886	3.6847	22%	1715.35	2039.25	443.24	360.22	359.84	100%	119%	18%



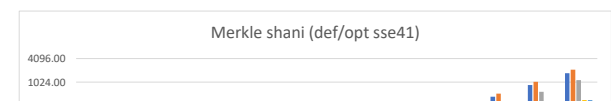
avx2, shani (opt avx2)	baseline	none	vector	native	both	vector	baseline	canonical	avx2	shani	both	both	canonical	optimal
1	0.0048	0.0055	0.0052	0.0012	0.0013	96%	0.47	0.53	0.51	0.12	0.13	104%	114%	24%
2	0.0093	0.0106	0.0101	0.0022	0.0022	95%	0.90	1.03	0.98	0.21	0.22	103%	114%	21%
3	0.0135	0.0157	0.0150	0.0030	0.0031	96%	1.32	1.53	1.46	0.30	0.31	103%	116%	20%
4	0.0177	0.0207	0.0087	0.0040	0.0040	42%	1.73	2.02	0.85	0.39	0.39	101%	117%	19%
8	0.0348	0.0410	0.0093	0.0076	0.0076	23%	3.40	4.01	0.91	0.74	0.74	100%	118%	18%
16	0.0703	0.0817	0.0180	0.0148	0.0152	22%	6.86	7.98	1.75	1.45	1.49	103%	116%	19%
32	0.1376	0.1647	0.0362	0.0297	0.0304	22%	13.44	16.08	3.53	2.90	2.97	102%	120%	18%
64	0.2745	0.3264	0.0718	0.0585	0.0593	22%	26.81	31.87	7.01	5.71	5.80	101%	119%	18%
128	0.5486	0.6538	0.1444	0.1165	0.1156	22%	53.57	63.85	14.10	11.38	11.29	99%	119%	18%
256	1.0949	1.3123	0.2839	0.2311	0.2313	22%	106.93	128.15	27.72	22.57	22.59	100%	120%	18%
512	2.1865	2.6174	0.5680	0.4621	0.4659	22%	213.52	255.61	55.46	45.12	45.49	101%	120%	18%
1,024	4.3782	5.2378	1.1349	0.9241	0.9325	22%	427.56	511.50	110.83	90.25	91.06	101%	120%	18%
2,048	8.7416	10.4499	2.2743	1.8492	1.8546	22%	853.67	1020.50	222.10	180.59	181.12	100%	120%	18%
4,096	17.4570	20.9133	4.5656	3.6976	3.6947	22%	1704.79	2042.31	445.86	361.09	360.81	100%	120%	18%



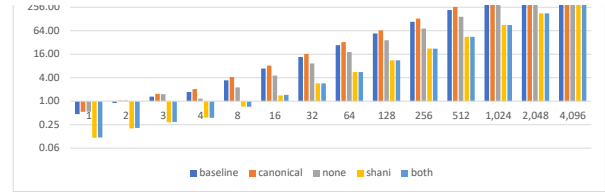
sse41, shani (opt avx2)	baseline	none	vector	native	both	vector	baseline	canonical	sse41	shani	both	both	canonical	optimal
1	0.0046	0.0054	0.0053	0.0013	0.0014	99%	0.45	0.53	0.52	0.13	0.13	102%	116%	25%
2	0.0092	0.0106	0.0103	0.0021	0.0022	97%	0.89	1.03	1.00	0.21	0.21	102%	116%	21%
3	0.0134	0.0158	0.0152	0.0030	0.0031	96%	1.31	1.54	1.48	0.29	0.30	102%	118%	19%
4	0.0175	0.0211	0.0087	0.0040	0.0039	41%	1.71	2.06	0.85	0.39	0.39	99%	120%	19%
8	0.0347	0.0417	0.0169	0.0076	0.0075	40%	3.39	4.08	1.65	0.74	0.73	99%	120%	18%
16	0.0687	0.0830	0.0333	0.0147	0.0147	40%	6.71	8.10	3.25	1.43	1.44	100%	121%	18%
32	0.1405	0.1658	0.0666	0.0292	0.0291	40%	13.72	16.19	6.50	2.85	2.84	100%	118%	18%
64	0.2761	0.3311	0.1321	0.0578	0.0579	40%	26.97	32.33	12.90	5.65	5.66	100%	120%	17%
128	0.5499	0.6643	0.2648	0.1176	0.1176	40%	53.70	64.87	25.86	11.48	11.48	100%	121%	18%
256	1.1013	1.3316	0.5284	0.2306	0.2302	40%	107.55	130.04	51.60	22.52	22.48	100%	121%	17%
512	2.1995	2.6591	1.0619	0.4617	0.4612	40%	214.79	259.68	103.70	45.09	45.04	100%	121%	17%
1,024	4.4018	5.3402	2.1168	0.9250	0.9256	40%	429.87	521.50	206.72	90.33	90.39	100%	121%	17%
2,048	8.8061	10.6302	4.2337	1.8434	1.8469	40%	859.97	1038.11	413.44	180.02	180.36	100%	121%	17%
4,096	17.5898	21.2432	8.4558	3.6924	3.6884	40%	1717.75	2074.53	825.76	360.59	360.20	100%	121%	17%



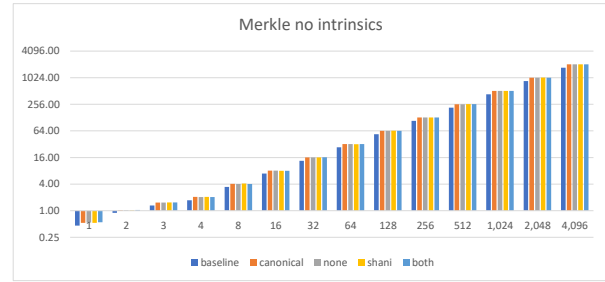
shani (def/opt sse41)	baseline	none	vector	native	both	vector	baseline	canonical	none	shani	both	both	canonical	optimal
1	0.00475	0.00546	0.00552	0.00119	0.00121	101%	0.46	0.53	0.54	0.12	0.12	102%	115%	22%
2	0.00922	0.01054	0.01063	0.00205	0.00212	101%	0.90	1.03	1.04	0.20	0.21	103%	114%	20%
3	0.01342	0.01578	0.01553	0.00294	0.00300	98%	1.31	1.54	1.52	0.29	0.29	102%	118%	19%
4	0.01754	0.02093	0.01194	0.00392	0.00384	57%	1.71	2.04	1.17	0.38	0.37	98%	119%	18%



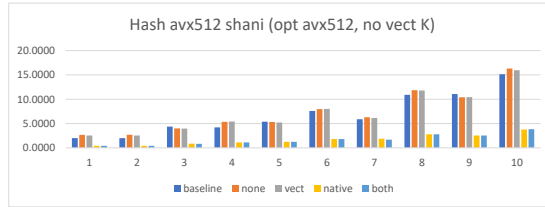
8	0.03498	0.04268	0.02313	0.00741	0.00738	54%	3.42	4.17	2.26	0.72	0.72	100%	122%	17%
16	0.07013	0.08365	0.04616	0.01444	0.01478	55%	6.85	8.17	4.51	1.41	1.44	102%	119%	18%
32	0.13858	0.16579	0.09487	0.02921	0.02922	57%	13.53	16.19	9.26	2.85	2.85	100%	120%	18%
64	0.27728	0.33264	0.18461	0.05702	0.05712	55%	27.08	32.48	18.03	5.57	5.58	100%	120%	17%
128	0.55610	0.66185	0.37138	0.11343	0.11368	56%	54.31	64.63	36.27	11.08	11.10	100%	119%	17%
256	1.10303	1.33167	0.74067	0.22768	0.22653	56%	107.72	130.05	72.33	22.23	22.12	99%	121%	17%
512	2.21310	2.65345	1.48239	0.45422	0.45549	56%	216.12	259.13	144.76	44.36	44.48	100%	120%	17%
1,024	4.41046	5.31064	2.96737	0.91001	0.91067	56%	430.71	518.62	289.78	88.87	88.93	100%	120%	17%
2,048	8.81361	10.64340	5.88922	1.81600	1.81620	55%	860.70	1039.39	575.12	177.34	177.36	100%	121%	17%
4,096	17.60820	21.78040	11.77490	3.62826	3.63142	54%	1719.55	2126.99	1149.89	354.32	354.63	100%	124%	17%



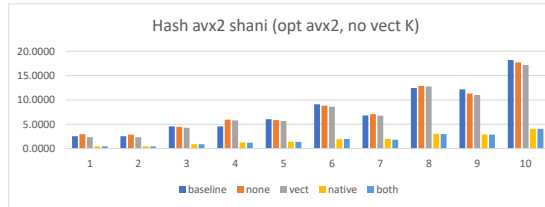
none	baseline	none	vector	native	both	vector	baseline	canonical	none	shani	both	both	canonical	optimal
1	0.0047	0.0054	0.0055	0.0054	0.0056	102%	0.46	0.53	0.54	0.53	0.55	103%	116%	103%
2	0.0091	0.0105	0.0106	0.0105	0.0107	100%	0.89	1.03	1.03	1.03	1.04	102%	116%	101%
3	0.0135	0.0157	0.0156	0.0157	0.0157	100%	1.31	1.53	1.53	1.54	1.53	100%	117%	100%
4	0.0177	0.0211	0.0208	0.0211	0.0209	99%	1.73	2.06	2.03	2.06	2.04	99%	119%	99%
8	0.0354	0.0414	0.0413	0.0423	0.0413	100%	3.46	4.05	4.04	4.13	4.03	98%	117%	100%
16	0.0712	0.0828	0.0826	0.0823	0.0822	100%	6.95	8.09	8.07	8.03	8.02	100%	116%	99%
32	0.1379	0.1649	0.1652	0.1647	0.1653	100%	13.47	16.10	16.13	16.08	16.15	100%	120%	100%
64	0.2783	0.3298	0.3303	0.3288	0.3290	100%	27.18	32.21	32.26	32.11	32.13	100%	119%	100%
128	0.5508	0.6597	0.6592	0.6602	0.6578	100%	53.79	64.42	64.38	64.47	64.23	100%	120%	100%
256	1.1080	1.3215	1.3139	1.3157	1.3162	99%	108.20	129.05	128.31	128.49	128.54	100%	119%	100%
512	2.2076	2.6308	2.6301	2.6386	2.6426	100%	215.58	256.91	256.85	257.67	258.06	100%	119%	100%
1,024	4.4097	5.2538	5.2514	5.2502	5.2587	100%	430.63	513.07	512.83	512.71	513.55	100%	119%	100%
2,048	8.8255	10.5229	10.5026	10.5332	10.5104	100%	861.86	1027.63	1025.64	1028.63	1026.41	100%	119%	100%
4,096	17.6157	21.0605	21.0372	21.1112	20.9779	100%	1720.28	2056.69	2054.41	2061.64	2048.62	99%	120%	100%



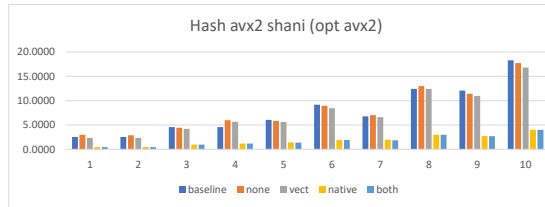
avx512, shani (opt avx2) -k	baseline	none	vect	native	both	vector	optimal	canonical
1024 H 1024^2 bytes	1.9917	2.6735	2.5298	0.4271	0.4273	95%	15%	134%
1 H 1024^3 bytes	1.9997	2.6778	2.5426	0.4313	0.4279	95%	16%	134%
8 * 1024^2 H 128 bytes	4.3695	3.9967	3.9665	0.8463	0.8446	99%	21%	91%
8 * 1024^2 DH 128 bytes	4.2202	5.3389	5.3974	1.1214	1.1238	101%	21%	127%
16 * 1024^2 H 64 bytes	5.3867	5.3150	5.2351	1.2528	1.2484	98%	23%	99%
16 * 1024^2 DH 64 bytes	7.5736	7.9645	7.9875	1.8096	1.8096	100%	23%	105%
32 * 1024^2 H 32 bytes	5.8776	6.2785	6.1335	1.8566	1.6920	98%	27%	107%
32 * 1024^2 DH 32 bytes	10.8925	11.8642	11.7813	2.7830	2.7811	99%	23%	109%
32 * 1024^2 H 32/32 bytes	11.0686	10.4147	10.4393	2.5219	2.5236	100%	24%	94%
32 * 1024^2 DH 32/32 bytes	15.1278	16.3147	15.9497	3.7701	3.8240	98%	23%	108%



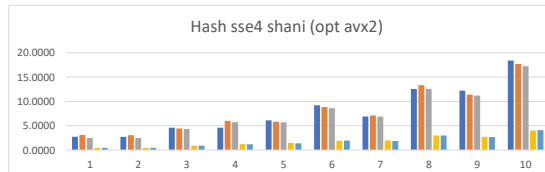
avx2, shani (opt avx2) -k	baseline	none	vect	native	both	vector	optimal	canonical
1024 H 1024^2 bytes	2.5342	2.9616	2.3380	0.4550	0.4544	79%	15%	117%
1 H 1024^3 bytes	2.5314	2.8526	2.3326	0.4550	0.4549	82%	16%	113%
8 * 1024^2 H 128 bytes	4.5653	4.4483	4.2660	0.8911	0.8967	96%	20%	97%
8 * 1024^2 DH 128 bytes	4.5668	5.9446	5.7782	1.2752	1.1931	97%	20%	130%
16 * 1024^2 H 64 bytes	6.0476	5.8379	5.6548	1.4133	1.3511	97%	23%	97%
16 * 1024^2 DH 64 bytes	9.1155	8.8317	8.6155	1.9291	1.9596	98%	22%	97%
32 * 1024^2 H 32 bytes	6.7903	7.0659	6.7827	1.9661	1.8192	96%	26%	104%
32 * 1024^2 DH 32 bytes	12.4627	12.8749	12.7792	3.0279	2.9895	99%	23%	103%
32 * 1024^2 H 32/32 bytes	12.1684	11.3298	11.0317	2.9199	2.8702	97%	25%	93%
32 * 1024^2 DH 32/32 bytes	18.2094	17.7188	17.1829	4.0447	4.0414	97%	23%	97%



avx2, shani (opt avx2)	baseline	none	vect	native	both	vector	optimal	canonical
1024 H 1024^2 bytes	2.5258	2.9782	2.3533	0.4560	0.4543	79%	15%	118%
1 H 1024^3 bytes	2.5252	2.8671	2.3485	0.4546	0.4557	82%	16%	114%
8 * 1024^2 H 128 bytes	4.5573	4.4448	4.2065	0.9601	0.9507	95%	21%	98%
8 * 1024^2 DH 128 bytes	4.5617	5.9825	5.6697	1.1916	1.1894	95%	20%	131%
16 * 1024^2 H 64 bytes	6.0414	5.8334	5.6323	1.4127	1.3520	97%	23%	97%
16 * 1024^2 DH 64 bytes	9.1601	8.9417	8.4310	1.9097	1.9102	94%	21%	98%
32 * 1024^2 H 32 bytes	6.7612	7.0077	6.6106	1.9678	1.8281	94%	26%	104%
32 * 1024^2 DH 32 bytes	12.4293	12.9918	12.4335	2.9658	2.9669	96%	23%	105%
32 * 1024^2 H 32/32 bytes	12.0632	11.4030	10.9658	2.7118	2.7029	96%	24%	95%
32 * 1024^2 DH 32/32 bytes	18.2918	17.7297	16.8262	4.0196	3.9980	95%	23%	97%



sse41, shani (opt avx2)	baseline	none	vect	native	both	vector	optimal	canonical
1024 H 1024^2 bytes	2.7202	3.0858	2.4592	0.4566	0.4560	80%	15%	113%
1 H 1024^3 bytes	2.7080	3.0481	2.4564	0.4553	0.4541	81%	15%	113%
8 * 1024^2 H 128 bytes	4.5804	4.4395	4.3299	0.8966	0.9047	98%	20%	97%
8 * 1024^2 DH 128 bytes	4.5738	5.9744	5.7241	1.1977	1.1837	96%	20%	131%
16 * 1024^2 H 64 bytes	6.1164	5.8180	5.6927	1.4203	1.3541	98%	23%	95%
16 * 1024^2 DH 64 bytes	9.1994	8.8338	8.6136	1.9146	1.9202	98%	22%	96%
32 * 1024^2 H 32 bytes	6.8914	7.0704	6.8537	1.9638	1.8336	97%	26%	103%
32 * 1024^2 DH 32 bytes	12.5403	13.3404	12.5843	2.9849	2.9760	94%	22%	106%



32 * 1024^2 H 32/32 bytes	12.1920	11.3916	11.1909	2.7006	2.6725	98%	23%	93%
32 * 1024^2 DH 32/32 bytes	18.4065	17.6977	17.2322	3.9987	4.0728	97%	23%	96%

shani (def/opt sse4)	baseline	none	vect	native	both	vector	optimal	canonical
1024 H 1024^2 bytes	2.5304	2.9885	2.5566	0.4538	0.4552	86%	15%	118%
1 H 1024^3 bytes	2.5289	3.0919	2.5614	0.4534	0.4537	83%	15%	122%
8 * 1024^2 H 128 bytes	4.5377	4.3440	4.2463	0.9480	0.8926	98%	21%	96%
8 * 1024^2 DH 128 bytes	4.5342	5.8601	5.7620	1.1527	1.1520	98%	20%	129%
16 * 1024^2 H 64 bytes	6.0042	5.8407	5.7551	1.4643	1.4593	99%	25%	97%
16 * 1024^2 DH 64 bytes	9.0995	8.8381	8.6860	1.8615	1.8505	98%	21%	97%
32 * 1024^2 H 32 bytes	6.7440	7.1120	6.8840	1.8975	1.8307	97%	26%	105%
32 * 1024^2 DH 32 bytes	12.4089	12.9335	13.0912	2.9110	2.8953	101%	22%	104%
32 * 1024^2 H 32/32 bytes	12.2033	11.4239	11.3076	2.6430	2.6580	99%	23%	94%
32 * 1024^2 DH 32/32 bytes	18.4718	17.6675	17.4357	3.7768	3.8095	99%	22%	96%

none	baseline	none	vect	native	both	vector	optimal	canonical
1024 H 1024^2 bytes	2.5217	3.0009	3.0160	3.0026	3.0016	101%	100%	119%
1 H 1024^3 bytes	2.5214	2.9722	2.9842	2.9734	2.9673	100%	100%	118%
8 * 1024^2 H 128 bytes	4.5611	4.4391	4.4387	4.4256	4.4255	100%	100%	97%
8 * 1024^2 DH 128 bytes	4.5658	5.9770	5.9320	5.9673	5.9957	99%	100%	131%
16 * 1024^2 H 64 bytes	6.1467	5.8975	5.8738	5.8788	5.8745	100%	100%	96%
16 * 1024^2 DH 64 bytes	9.0474	8.8851	8.8384	8.8710	8.8603	99%	100%	98%
32 * 1024^2 H 32 bytes	6.7845	7.0705	7.0613	7.1218	7.0766	100%	100%	104%
32 * 1024^2 DH 32 bytes	12.4285	13.1364	13.1239	13.1265	13.1341	100%	100%	106%
32 * 1024^2 H 32/32 bytes	12.1900	11.5004	11.5055	11.5338	11.5001	100%	100%	94%
32 * 1024^2 DH 32/32 bytes	18.2475	17.7354	17.7288	17.7175	17.7321	100%	100%	97%

avx512, shani (opt avx512) -k	accum-a	chunk-c	chunk-u	rmd-base	rmd-algo	rmd-accum	rmd algo	accum
1024 H 1024^2 bytes	0.4294	0.4275	0.4325	1.7676	1.8907	1.8859	107%	107% opt avx512
1 H 1024^3 bytes	0.4307	0.4306	0.4297	1.7684	1.8929	1.8932	107%	107% opt avx512
8 * 1024^2 H 128 bytes	0.8454	0.8960	0.9144	2.8320	2.9291	2.9321	103%	104%
8 * 1024^2 DH 128 bytes	1.2507	1.3543	1.3402	3.9153	3.9615	3.9605	101%	101%
16 * 1024^2 H 64 bytes	1.8523	1.9927	1.8919	4.3804	4.1815	4.1843	95%	96%

avx2, shani (opt avx2) -k	accum-a	chunk-c	chunk-u	rmd-base	rmd-algo	rmd-accum	rmd algo	accum
1024 H 1024^2 bytes	0.4547	0.4555	0.4566	1.8507	1.9933	1.9923	108%	108% opt avx2
1 H 1024^3 bytes	0.4569	0.4536	0.4563	1.8508	1.9925	1.9881	108%	107% opt avx2
8 * 1024^2 H 128 bytes	0.8875	0.9472	0.9573	3.0383	3.1287	3.1236	103%	103%
8 * 1024^2 DH 128 bytes	1.4250	1.4834	1.4387	4.2108	4.2540	4.2538	101%	101%
16 * 1024^2 H 64 bytes	1.9640	2.0488	1.9830	4.7244	4.5318	4.5278	96%	96%

avx2, shani (opt avx2)	accum-a	chunk-c	chunk-u	rmd-base	rmd-algo	rmd-accum	rmd algo	accum
1024 H 1024^2 bytes	0.4540	0.4557	0.4546	1.8576	1.9884	1.9922	107%	107% opt avx2
1 H 1024^3 bytes	0.4541	0.4549	0.4541	1.8615	1.9903	1.9903	107%	107% opt avx2
8 * 1024^2 H 128 bytes	0.8953	0.9918	1.0208	3.0367	3.1222	3.1222	103%	103%
8 * 1024^2 DH 128 bytes	1.5785	1.4860	1.4590	4.2257	4.2544	4.2540	101%	101%
16 * 1024^2 H 64 bytes	1.9776	2.0741	1.9899	4.7452	4.5183	4.5333	95%	96%

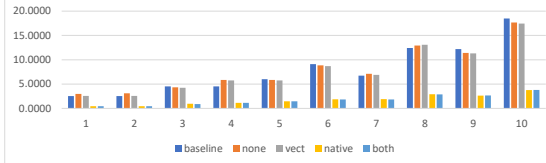
sse41, shani (opt avx2)	accum-a	chunk-c	chunk-u	rmd-base	rmd-algo	rmd-accum	rmd algo	accum
1024 H 1024^2 bytes	0.4616	0.4581	0.4557	1.8492	1.9877	1.9928	107%	108% opt avx2
1 H 1024^3 bytes	0.4618	0.4554	0.4541	1.8597	1.9873	1.9885	107%	107% opt avx2
8 * 1024^2 H 128 bytes	0.9142	0.9471	0.9683	3.0515	3.1146	3.1203	102%	102%
8 * 1024^2 DH 128 bytes	1.4638	1.4962	1.4484	4.2293	4.2436	4.2436	100%	100%
16 * 1024^2 H 64 bytes	1.9863	2.0794	1.9917	4.7415	4.5214	4.5134	95%	95%

shani (def/opt sse4)	accum-a	chunk-c	chunk-u	rmd-base	rmd-algo	rmd-accum	rmd algo	accum
1024 H 1024^2 bytes	0.45471	0.45438	0.45422	1.94814	1.98767	1.99001	102%	102% no avx2
1 H 1024^3 bytes	0.45517	0.45362	0.45431	1.95017	1.98568	1.98380	102%	102% no avx2
8 * 1024^2 H 128 bytes	0.93644	0.92491	0.94164	3.17555	3.11929	3.12098	98%	98%
8 * 1024^2 DH 128 bytes	1.42751	1.50615	1.49999	4.41347	4.23453	4.23590	96%	96%
16 * 1024^2 H 64 bytes	1.89173	1.97500	1.90022	4.95008	4.51425	4.52112	91%	91%

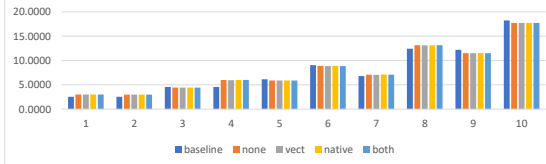
none	accum-a	chunk-c	chunk-u	rmd-base	rmd-algo	rmd-accum	rmd algo	accum
1024 H 1024^2 bytes	3.0018	3.0106	3.0327	1.9457	1.9889	1.9935	102%	102% no avx2
1 H 1024^3 bytes	2.9779	3.0117	3.0369	1.9513	1.9897	1.9871	102%	102% no avx2
8 * 1024^2 H 128 bytes	4.4228	4.4486	4.8100	3.1789	3.1126	3.1109	98%	98%
8 * 1024^2 DH 128 bytes	5.8820	5.9230	5.8705	4.4193	4.2481	4.2343	96%	96%
16 * 1024^2 H 64 bytes	7.0872	7.1702	7.1707	4.9302	4.4965	4.4930	91%	91%

baseline none vect native both

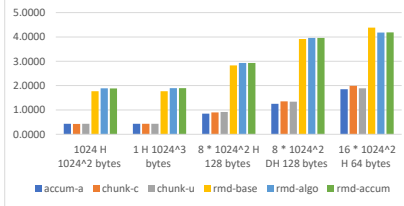
Hash shani (def/opt sse4)



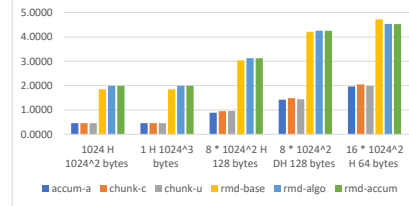
Hash no intrinsics



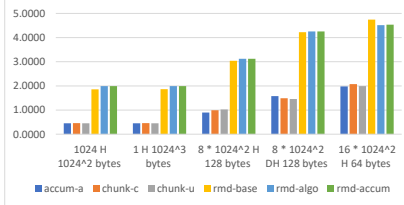
Other avx512, shani (opt avx512) -k



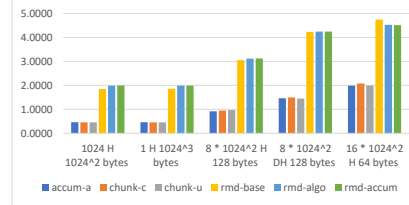
Other avx2, shani (opt avx2) -k



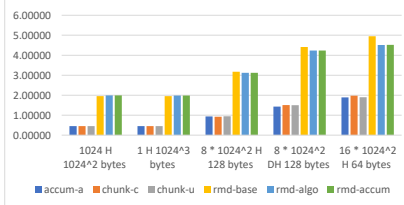
Other avx2, shani (opt avx2)



sse41, shani (opt avx2)



shani (def/opt sse4)



No intrinsics

