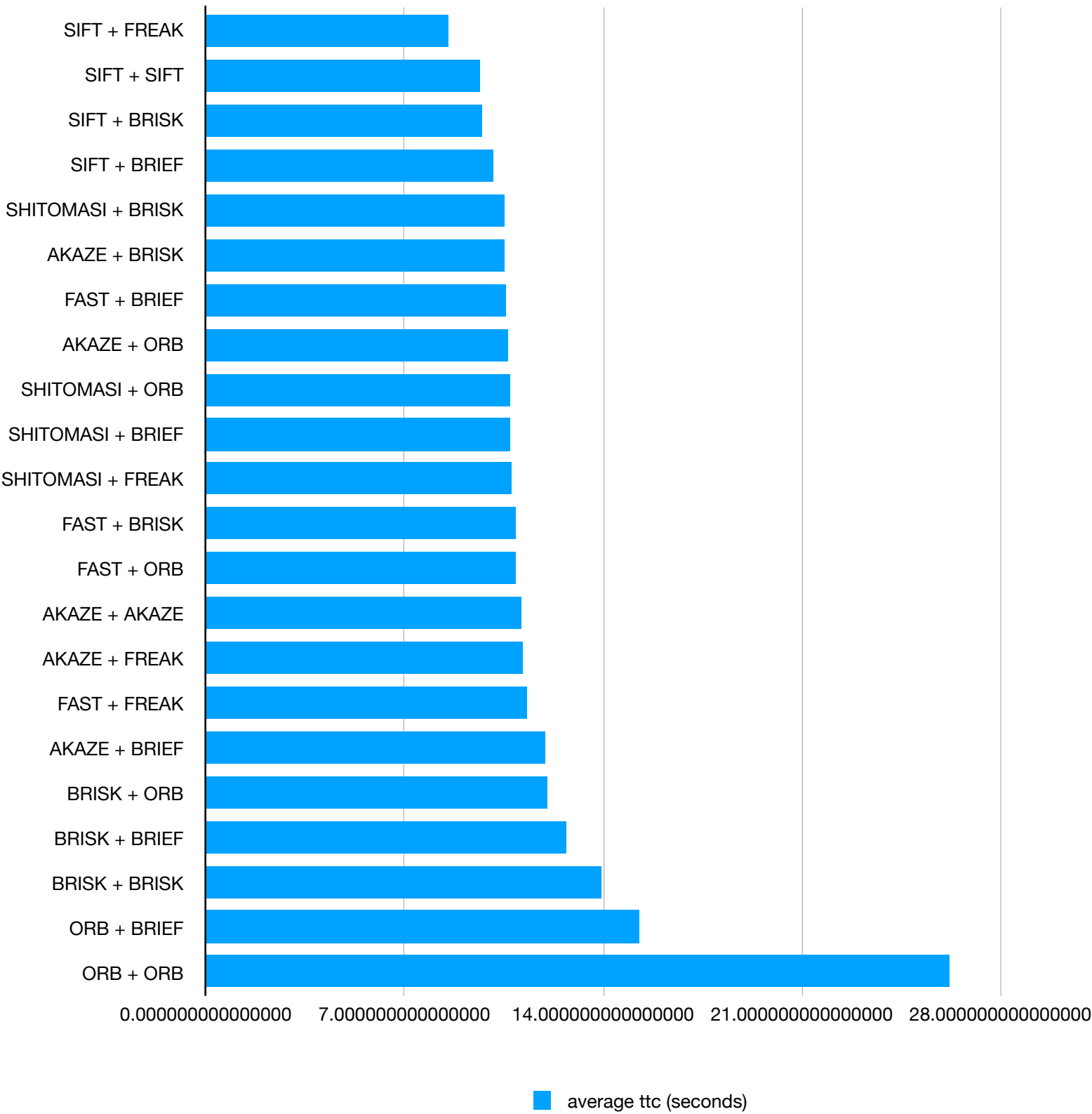


Frame by Frame TTC for Various Combinations of Detector and Descriptors

image index	AKAZE + AKAZE	SIFT + BRISK	SHITOM ASI + FREAK	FAST + BRIEF	AKAZE + ORB	AKAZE + BRISK	BRISK + BRISK	FAST + FREAK	SHITOM ASI + BRIEF	SHITOM ASI + ORB	ORB + ORB	SHITOM ASI + BRISK	BRISK + BRIEF	AKAZE + BRIEF	SIFT + FREAK	FAST + ORB	FAST + BRISK	BRISK + ORB	ORB + BRIEF	SIFT + SIFT	SIFT + BRIEF	AKAZE + FREAK
1	12.4484	11.8471	15.9876	12.313	11.8703	11.2491	14.3346	12.6271	13.9352	13.6505	27.8089	13.3689	10.474	12.5102	11.7668	11.6564	12.8514	12.3234	15.2284	11.0358	12.3391	11.5051
2	13.3447	14.3531	12.4188	11.7261	12.915	12.4177	19.3412	12.7653	13.5599	12.5196	11.493	13.0142	20.5783	14.9293	13.3859	11.7855	12.9015	17.535		13.5952	13.9197	13.492
3	13.5393	12.9017	11.6934	14.0745	13.238	12.9873	14.1798	13.9459	11.3769	12.884	19.1337	12.4903	9.95621	12.3933	13.1012	12.9876	12.6506	15.1898		11.9039	13.5213	13.1662
4	13.3821	18.2137	14.2812	12.3288	14.7363	12.3807	14.2656	14.5754	13.0851	12.02		12.8899	19.763	13.4908	18.7445	12.6318	12.5957	15.9863		13.6863	22.057	14.3668
5	14.8722	14.1889	11.7216	13.5617	13.708	13.8233	31.9205	12.1524	12.0803	11.9645	21.8774	12.4657	20.5223	14.0982	13.7045	12.8467	11.1183	20.1467		12.2522	12.5795	14.1599
6	14.173	10.7538	13.4383	12.1551	12.8051	12.6324	16.5304	12.2187	12.4359	12.9772		14.3087	12.5127	12.2125	12.3834	12.9669	12.4972	18.6483		12.6756	11.2991	13.8078
7	15.9769	13.3431	12.4947	12.627	16.043	15.805	14.4256	13.9588	18.1263	11.4079		12.1823	14.4434	15.7052	-61.6794	13.4524	13.248	13.4573		13.6161	13.4527	15.777
8	13.8924	15.1409	11.9393	12.6011	13.2903	13.2003	14.3991	12.6147	11.9646	11.869		12.8594	19.2905	13.8876	14.2011	11.8668	11.7648	17.5031		15.6277	16.2113	12.8868
9	14.3228	12.7733	12.2092	12.7277	12.6628	14.1949	14.4678	12.3427	11.9106	11.3992		11.5528	14.4584	11.8292	13.8173	12.7688	13.3673	14.149		12.6165	13.0516	13.7655
10	11.7502	11.0589	13.5197	13.3644	12.1179	12.435	11.2176	12.3909	13.0518	13.7396		12.7376	9.36315	11.9817	9.90178	13.0515	12.3043	11.1942		10.3904	10.4647	11.8941
11	13.3979	11.6726	12.0367	11.8438	12.5814	12.2793	13.0458	12.1201	12.0611	11.5546		11.328	14.3834	12.3712	10.3155	12.0013	11.897	12.8755		10.9107	11.7798	11.9646
12	11.1321	10.7424	12.495	12.1033	10.9525	10.2598	12.0497	11.4664	11.6302	11.6118		12.4222	15.4095	10.6091	12.1155	11.602	11.5965	11.7533		10.6221	11.3345	10.2174
13	10.8239	9.24419	12.1038	12.2522	10.1868	10.4123	11.9113	12.0819	12.1119	11.713	9.67675	12.561	11.5717	13.1697	8.88215	11.8008	11.9813	10.7902		9.56917	9.98918	10.3217
14	11.9631	9.23867	12.1828	10.3934	9.86863	9.83687	13.1722	11.7064	11.4541	10.7101		12.7749	11.5143	11.4878	9.62875		11.4362	12.8117		12.0408	11.9765	9.86746
15	10.3195	9.81726	10.2326		9.96887	9.77568	11.3044	10.0358	11.2801	9.99829		9.11578	10.3133	9.70374	9.79784	10.6964	11.0014	10.7674		9.75163	9.10798	9.37964
16	9.74422	9.49355	10.3348		10.1166	9.11667	10.4527	11.1036	12.1848	11.9741	9.65407	11.1729	14.0191	9.53563	8.93934	10.6542	11.0559	11.5479		9.22523	9.1308	10.24
17	9.70198	8.54253	12.6793	10.3532	9.21884	8.21449	11.1599	9.77888	8.7684	14.9138	22.1353	12.5923	12.1587	9.14676	8.51676		10.4309	9.43509		8.84758		8.64595
18	9.13751	8.42644	11.0296		9.04354	8.6196	13.4933	11.0036	8.93181	11.4428	23.3647	11.1044	9.43264	8.72748	8.87388	11.3881	11.029	11.1301		9.32687	8.05987	8.45728
19	9.62687	7.88579	10.4612	10.138	9.55117	10.7576	11.4529	10.3838	11.8135	11.6181	12.4413	11.9638	9.94311	11.9332	8.19295	11.1895	10.5467	10.4267		9.10495	8.70719	8.76374
20	8.95982	8.21257	9.5738	10.5877	8.60501	8.59066	16.5767	10.7543	8.77406	8.79454	6.82255	7.62469	16.3342	8.27035	8.53221	10.9039	10.9981	10.8229		8.63324	8.70801	8.70729
21	8.48705	8.53153	7.50524	8.42381	9.52245	8.81038	10.7324	7.94528	8.67579	8.4182		7.21126	11.1013	7.65958	8.14454		10.645	8.96862		9.84219	8.67233	8.95252
22	7.84629	8.10366	9.9741	9.38153	7.90635	9.59025	10.5383	9.01382	8.97458	9.22335	13.1516	10.2618	9.40792	8.19467	8.27387	9.5849	9.96432	10.2077		7.97131	8.1816	7.73646
23	7.88347	8.3353	10.0177	8.88972	8.41709	9.11936			10.82	9.70502	10.1975	8.77651	12.0718	8.35464	8.12256	10.719		11.1187		7.93902	10.5684	9.04188
24	7.98451	8.12359	8.80925	7.86252	9.12073	9.09346	10.5718		10.1394	9.82672	9.48144	10.2477	8.83272	8.08078	8.21294	8.07974	7.78277			6.87755	8.77951	10.1578
25	8.80362	9.27241	9.25033	12.3427	9.3164	9.43858	9.35334	10.1665	8.26497	13.1437		10.9316	9.15516	8.39542	9.76864	10.6677	11.0924	11.8443		10.8112	9.73529	9.75511
26	9.34661	10.4266	8.74982	9.50582	9.69481	9.98177	13.5198		13.2755	8.79876		8.46905	18.8424	13.0139	11.3007	11.0781				7.24652	10.2473	8.91226
27	11.3353	9.58651	10.7704	9.70799	9.43293	10.2277			10.1029	11.3278	25.4807	9.29645	14.6423	14.7942	9.79257	12.1082				8.96552	9.68545	10.5414
28	10.4598	9.61623	13.0375	10.5158	8.53773	10.899	13.6437	12.9405	12.9963	11.0149	15.5077	9.49666	12.5896	10.3098	10.8997	11.8008	11.2292	12.1551		9.26354	9.48324	11.789
29	8.68576	10.4124	11.8595	9.51845	9.62537	8.67384	14.6851		10.5755	11.3624		11.0003	10.5994	13.0463	10.4375	12.0327		14.5105		10.3674	10.2568	11.4558
30	10.1667	9.44105	10.2351	11.8182	9.88919	8.87828			9.6091	12.3596		10.0637	10.0541	9.43911	10.0775	12.9581				9.31607	9.95191	9.11131
31	11.9263	10.1733	12.0367	10.7503	11.6894	9.55955	19.948	11.6484	12.0944	12.0033		11.3014	13.0809	12.6766	10.649	13.1247				8.69495	11.2048	
32	11.2423	10.6374	15.8006	13.0804	10.2161	11.2705			14.6042	13.9822		14.4736	18.5929	12.8876	12.5106	12.9876				11.3691	11.3596	10.636
33	10.5105	10.3936	11.5209	12.3008	9.75185	9.99462			12.7062	10.8332	9.41227	11.592	13.3986	10.8757	10.6615	12.7542				9.87875	10.5691	9.71494
34	11.1461	8.92211	9.90153	10.5158	9.23296	8.81276	11.3902		9.99343	11.0196		9.65424	11.1054	9.93558	10.4768	11.0138				9.32229	9.87138	8.47689
35	8.94005	7.98174	9.29418	9.8336	7.90797	9.7949			9.14637	8.40898	6.33867	9.63242	8.46321	8.34628	8.48885	10.0836		10.3362		7.65721	8.22662	9.77986
36	8.27787	7.54953	8.11801	8.17319	6.99265	8.21483			7.75818	8.71165		7.90354	11.6596	7.73899	7.04629	8.32402				7.57614	7.57628	6.63946
37	8.16861	7.32458	6.87695	6.27708	7.07721	7.35876	7.46217		6.43856	7.51647		7.20862	7.5098	7.58146	7.25231	6.9777				6.67384	7.33345	7.00158
38	9.8361	7.24009	8.49479	7.70466	9.88958	8.02124			8.34667	8.03155	10.3222	7.66612	18.5969	9.20796	7.73518	9.13586		10.1421		7.55098	7.7068	7.47783
39	10.2222	7.75564	8.88282	8.30204	23.1867	8.3107	10.7458	8.19475	7.12057	8.20515	204.161	7.6029	6.62514	37.2324	8.42932	7.71566	7.95423	11.4606		6.9381	7.5019	18.4421
40	11.6896	6.76534	8.29172		7.01083	7.82199	23.1012	9.70272	8.15225	7.82092		10.6675	10.4968	7.49103	8.70977	9.70464	9.522	9.73944		6.91306	6.94161	8.86445
41	9.73488	7.10267	7.77766	6.78312	6.11736	6.77886	9.11247	8.03433	8.76336	9.05485	11.0036	7.67671	7.53874	28.2259	8.1134	6.90153	7.21304	9.1453		8.65071	7.07826	29.2675
42	10.9593	6.03412	7.78085	5.9571	6.21113	5.69579	7.9448	9.2544	8.48687	7.52818	62.8179	7.68107	6.79204	6.75692	6.47793	9.25027	8.01561	7.93966		6.467	6.61303	10.0349
43	13.6086	6.84837	7.53528	7.93482	10.9425	5.39094	22.2898	9.55959	7.50325	6.22943	34.015	7.48514	10.1915	7.49653	7.3052	7.5829	7.99219	7.46919		7.99644	6.79738	6.96057
44	10.3306	6.7438	7.46577	7.81101	7.88715	5.99792	8.74584	7.97817	7.32649	7.32778		7.62634	6.91551	7.78327	7.6824	6.98712	7.73763	7.45734		7.01398	7.0339	9.86118
45	9.46562	7.73552	6.75366	7.22376	8.3232	32.8032	9.63265	7.78691	7.33602	7.09587		6.45228	8.03807	7.6603	8.04174	7.45806	7.31537	8.3442		8.2218	8.01104	8.42386
46	12.669	7.76874	7.55713	8.83913	9.94147	8.86354	17.3865	9.60807	7.56574	7.74994		7.19973	9.99642	8.08238	8.26215	8.3317	8.50745	9.06549		8.28452	8.09499	9.06193
47	11.3342	8.60205	11.9757	9.036	18.7502	9.27904	14.0709	11.2317	11.8197	10.2558		11.4269	11.6691	13.9416	9.33282	9.18288	9.64322	10.534		9.31422	8.93247	13.7598
48	12.3868	9.63221	13.7684	15.4331	10.7504	11.9135	18.024	13.9652	12.6821	11.6194		11.8287	28.4248	26.0839	10.6958	13.1683	14.8242	12.9724		9.84024	10.0699	18

Average TTC Values

detector descriptor combination	average ttc (seconds)
SIFT + FREAK	8.547311020408170
SIFT + SIFT	9.658990204081630
SIFT + BRISK	9.708775306122450
SIFT + BRIEF	10.115476458333300
SHITOMASI + BRISK	10.522761428571400
AKAZE + BRISK	10.526880204081600
FAST + BRIEF	10.584083333333300
AKAZE + ORB	10.664974897959200
SHITOMASI + ORB	10.669817346938800
SHITOMASI + BRIEF	10.72372387755100
SHITOMASI + FREAK	10.73578755102040
FAST + BRISK	10.911964722222200
FAST + ORB	10.924503913043500
AKAZE + AKAZE	11.069257959183700
AKAZE + FREAK	11.180134375
FAST + FREAK	11.28422833333330
AKAZE + BRIEF	11.952011428571400
BRISK + ORB	12.019944358974400
BRISK + BRIEF	12.711531428571400
BRISK + BRISK	13.952879756097600
ORB + BRIEF	15.2284
ORB + ORB	26.195329545454500



Average Number of Matching

detector descriptor combination	average matching points
FAST + BRISK	5074.2040816326500
FAST + FREAK	4786.836734693880
FAST + BRIEF	4665.2040816326500
FAST + ORB	4583.571428571430
BRISK + BRISK	3177.8979591836700
BRISK + BRIEF	3138.3061224489800
BRISK + ORB	3117.3673469387800
SIFT + SIFT	2090.4489795918400
SIFT + BRISK	2004.8775510204100
SIFT + FREAK	1898.7551020408200
SIFT + BRIEF	1888.5714285714300
SHITOMASI + BRISK	1827.591836734690
SHITOMASI + FREAK	1735.3877551020400
SHITOMASI + SIFT	1723.0
SHITOMASI + BRIEF	1696.0408163265300
SHITOMASI + ORB	1669.061224489800
AKAZE + FREAK	1560.734693877550
AKAZE + AKAZE	1560.734693877550
AKAZE + BRISK	1560.734693877550
AKAZE + BRIEF	1560.734693877550
AKAZE + ORB	1554.591836734690
ORB + ORB	500.0
ORB + BRIEF	500.0
ORB + BRISK	391.0
ORB + FREAK	154.0

