Task 1 - Mandelbrot using OpenMP

Variant 1: Schedule Static

Number of Threads	1	2	4	8	12	16
Time (seconds)	6.66342	3.40753	2.72664	1.65285	1.14105	1.18535
Time (seconds)	6.66989	3.40012	2.70536	1.65324	1.14512	1.24672
Time (seconds)	6.66311	3.41342	2.71274	1.63652	1.14353	1.24595
Time (seconds)	6.72906	3.41558	2.73436	1.65685	1.14709	1.33197
Time (seconds)	6.66251	3.41657	2.74168	1.63836	1.29157	1.22789
Average Time (Seconds)	6.677598	3.410644	2.724156	1.647564	1.173672	1.247576

Variant 1: Schedule Dynamic

Number of Threads	1	2	4	8	12	16
Time (seconds)	6.67613	3.35927	1.67811	0.874913	0.817776	0.772073
Time (seconds)	6.65774	3.37031	1.67095	0.875279	0.820966	0.772318
Time (seconds)	6.65552	3.38683	1.68156	0.876591	0.818455	0.769679
Time (seconds)	6.65541	3.34121	1.68503	0.87505	0.818194	0.769968
Time (seconds)	6.66041	3.37385	1.66931	0.874527	0.818906	0.769649
Average Time (Seconds)	6.661042	3.366294	1.676992	0.875272	0.8188594	0.7707374

Variant 2: Schedule Static

Number of Threads	1	2	4	8	12	16
Time (seconds)	6.66632	4.84903	3.05918	1.82808	1.98203	1.51902
Time (seconds)	6.66555	4.83369	3.03553	1.81769	1.79085	1.52022
Time (seconds)	6.66562	4.84898	3.03904	1.8179	2.052	1.51841
Time (seconds)	6.6656	4.84043	3.03593	1.82513	2.04095	1.52281
Time (seconds)	6.67327	4.83766	3.05111	1.82989	2.06329	1.51917
Average Time (Seconds)	6.667272	4.841958	3.044158	1.823738	1.985824	1.519926

Variant 2: Schedule Dynamic

Number of Threads	1	2	4	8	12	16
Time (seconds)	6.68183	3.47911	1.74226	0.945081	0.868646	0.810845
Time (seconds)	6.68001	3.47842	1.74962	0.941931	0.869532	0.810638
Time (seconds)	6.69703	3.47494	1.75859	0.940014	0.912452	0.810888
Time (seconds)	6.68104	3.48672	1.7502	0.941036	0.868274	0.890328
Time (seconds)	6.68004	3.49078	1.75075	0.940887	0.867308	0.810529
Average Time (Seconds)	6.68399	3.481994	1.750284	0.9417898	0.8772424	0.8266456

Task 2 - Parallel Histogram using OpenMP

Variant 1: SPMD with atomic construct

Number of Threads	1	2	4	8	12	16
Time (seconds)	4.17963	2.44226	1.24229	0.673174	0.558562	0.476669
Time (seconds)	4.18867	2.44507	1.246	0.655836	0.541986	0.543838
Time (seconds)	4.17486	2.43073	1.2483	0.663891	0.554525	0.441499
Time (seconds)	4.22269	2.47871	1.2286	0.662879	0.541458	0.425736
Time (seconds)	4.23257	2.51965	1.24381	0.658839	0.542646	0.441855
Average Time (Seconds)	4.199684	2.463284	1.2418	0.6629238	0.5478354	0.4659194

Variant 2a: Work Sharing Static

Number of Threads	1	2	4	8	12	16
Time (seconds)	4.27615	2.26517	1.08244	0.59116	0.503851	0.381597
Time (seconds)	4.21631	2.22414	1.08238	0.564354	0.507487	0.384137
Time (seconds)	4.21837	2.19748	1.07891	0.583843	0.497073	0.383918
Time (seconds)	4.21939	2.22412	1.08744	0.566418	0.497874	0.384764
Time (seconds)	4.21867	2.28056	1.08213	0.574389	0.499141	0.380069
Average Time (Seconds)	4.229778	2.238294	1.08266	0.5760328	0.5010852	0.382897

Variant 2b: Work Sharing Dynamic

Number of Threads	1	2	4	8	12	16
Time (seconds)	4.87873	3.41766	1.73106	0.962523	0.719154	0.592549
Time (seconds)	4.87652	3.35562	1.7427	0.956024	0.713916	0.617913
Time (seconds)	4.85047	3.4195	1.70042	0.967185	0.71717	0.59103
Time (seconds)	4.88354	3.42625	1.71867	0.953099	0.713455	0.583883
Time (seconds)	4.89665	3.40292	1.71739	0.959729	0.719024	0.58694
Average Time (Seconds)	4.877182	3.40439	1.722048	0.959712	0.7165438	0.594463

Variant 2c: Work Sharing Guided

Number of Threads	1	2	4	8	12	16
Time (seconds)	4.22188	2.15764	1.07902	0.560687	0.4757	0.372938
Time (seconds)	4.26554	2.19174	1.07442	0.574398	0.477699	0.377748
Time (seconds)	4.23635	2.16061	1.0891	0.56078	0.481862	0.374889
Time (seconds)	4.2352	2.19134	1.0922	0.56942	0.490803	0.377625
Time (seconds)	4.22116	2.17122	1.08311	0.5679	0.473575	0.373433
Average Time (Seconds)	4.236026	2.17451	1.08357	0.566637	0.4799278	0.3753266

Variant 2d: Work Sharing Runtime

Number of Threads	1	2	4	8	12	16
Time (seconds)	4.77946	3.25411	1.69477	1.0863	0.818624	0.677093
Time (seconds)	4.80877	3.30841	1.70977	1.08095	0.815267	0.678482
Time (seconds)	4.8003	3.29748	1.73128	1.08211	0.824433	0.679221
Time (seconds)	4.77764	3.25697	1.70853	1.08671	0.814971	0.676259
Time (seconds)	4.80354	3.25787	1.71317	1.07624	0.819308	0.675416
Average Time (Seconds)	4.793942	3.274968	1.711504	1.082462	0.8185206	0.6772942

Variant 2e: Work Sharing Auto

| Number of Threads	1	2	4	8	12	16
Time (seconds)	4.21978	2.19107	1.09335	0.567645	0.49514	0.376974
Time (seconds)	4.2196	2.19838	1.10551	0.567934	0.501917	0.380474
Time (seconds)	4.3152	2.19618	1.07802	0.567403	0.503439	0.380736
Time (seconds)	4.21916	2.19784	1.08257	0.576864	0.507477	0.381106
Time (seconds)	4.26443	2.19082	1.08721	0.575531	0.500292	0.394825
Average Time (Seconds)	4.247634	2.194858	1.089332	0.5710754	0.501653	0.382823

Graphs

Task 1

Mandelbrot Variant 1
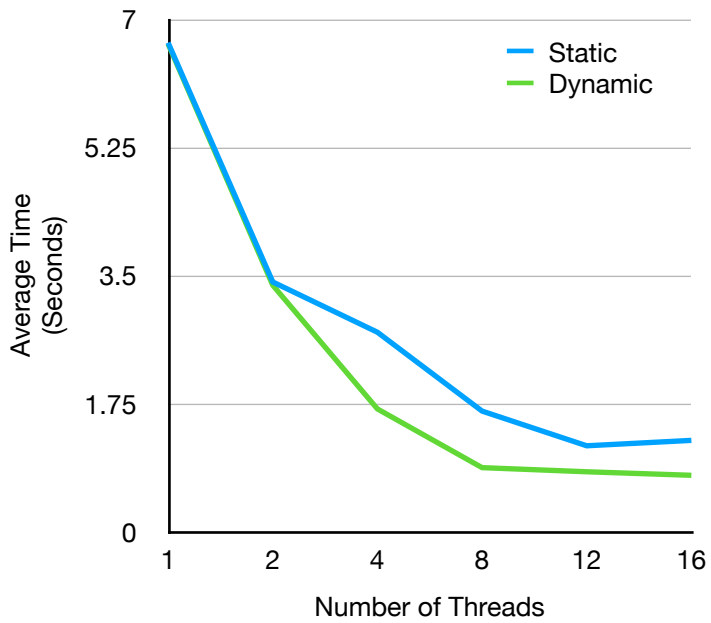
Mandelbrot Variant 2
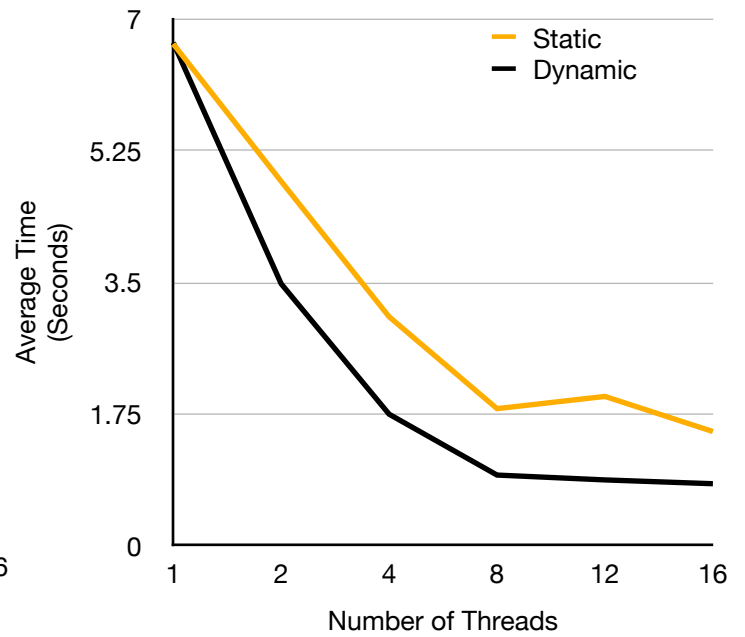
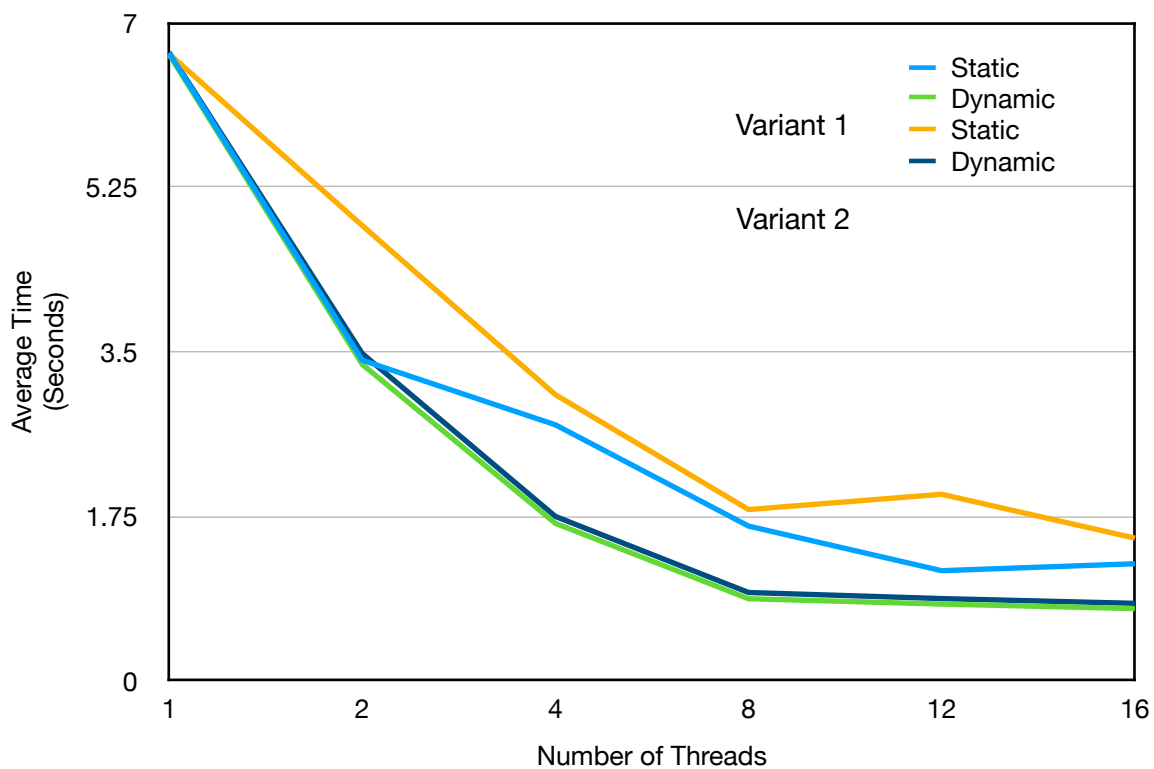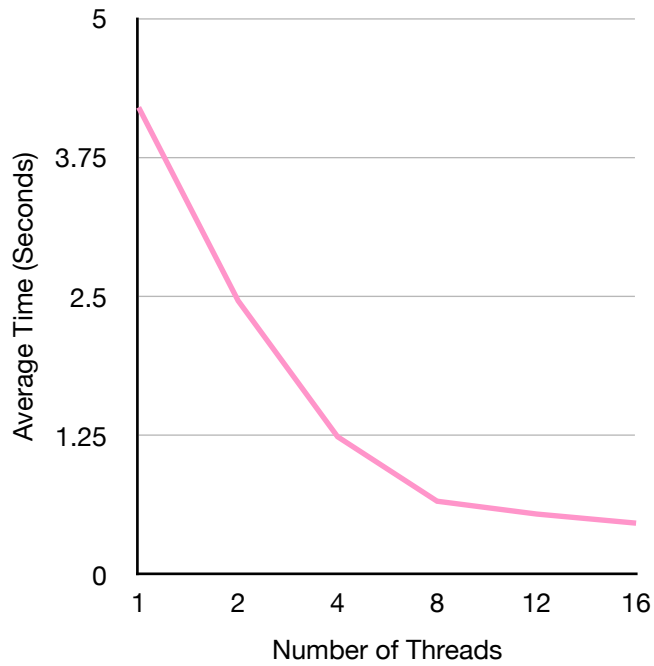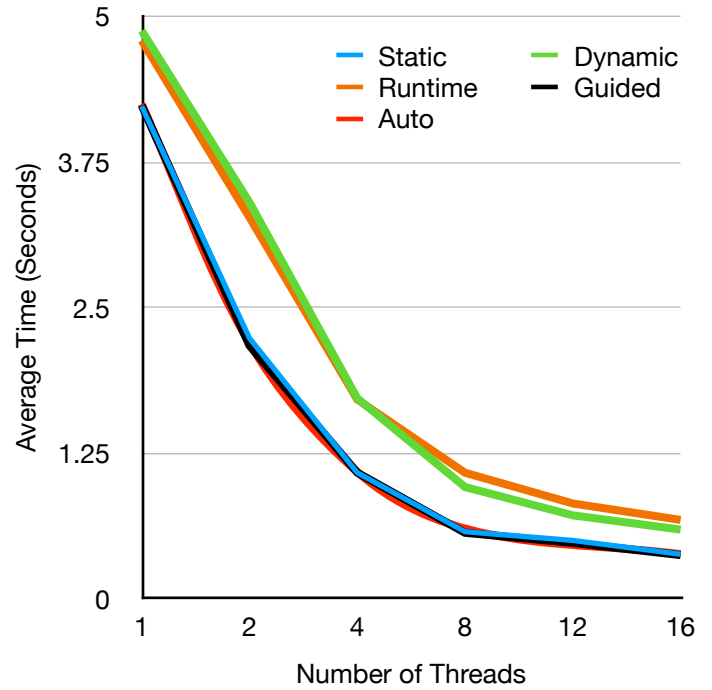### Mandelbrot Comparison

Task 2

Histogram Variant 1

Histogram Variant 2

Histogram Comparison Variant 1 and 2