Appendix C

Data tables

C.1 Parallelisation speed evaluation data tables

The data tables for the studies in Section 8.2.4 on page 197, 8.2.6 on page 203 and 8.2.8 on page 206 are presented in this section.

	Standard	Parallelised AMSS						Improvement	
	Time	Image		Time (min:sec)					
Scale	Calculate	Stripes	Overlap	Split	Calculate	Combine	Total	%	x
1	00:27.1	16	8	00:00.8	00:10.8	00:07.8	00:19.5	71.8	1.4
2	01:01.5	16	19	00:00.8	00:12.9	00:08.6	00:22.3	36.3	2.8
3	01:34.2	16	32	00:00.8	00:20.5	00:03.9	00:25.2	26.7	3.7
4	02:12.4	16	48	00:00.9	00:26.8	00:03.5	00:31.2	23.5	4.2
5	02:51.5	16	64	00:00.9	00:29.1	00:04.7	00:34.8	20.3	4.9
6	03:38.9	16	82	00:01.0	00:34.3	00:04.1	00:39.4	18.0	5.6
7	04:19.9	15	100	00:01.0	00:41.1	00:07.9	00:50.0	19.3	5.2
8	05:01.8	12	120	00:01.0	01:01.0	00:04.6	01:06.6	22.1	4.5
9	05:48.2	10	140	00:01.0	01:14.9	00:05.4	01:21.3	23.3	4.3
10	06:31.6	9	162	00:00.9	01:037.4	00:03.4	01:41.8	26.0	3.8
11	07:16.1	8	183	00:01.0	01:55.0	00:04.7	02:00.7	27.7	3.6
12	08:16.5	7	206	00:01.0	02:18.9	00:03.4	02:23.3	28.9	3.5
13	09:01.0	6	229	00:01.0	02:51.8	00:03.7	02:56.4	32.6	3.1
14	09:56.7	5	253	00:00.9	03:34.5	00:03.4	03:38.8	36.7	2.7
15	10:46.8	5	277	00:00.9	03:56.9	00:03.4	04:01.2	37.3	2.7
16	11:38.6	4	302	00:00.9	04:58.2	00:03.2	05:02.3	43.3	2.3
17	12:25.9	4	328	00:00.9	05:25.4	00:03.3	05:29.6	44.2	2.3
18	13:28.6	4	354	00:00.9	06:03.0	00:03.4	06:07.3	45.4	2.2
19	14:22.9	3	380	00:00.9	07:36.7	00:03.1	07:40.8	53.4	1.9
20	15:32.2	3	407	00:00.9	08:22.2	00:03.2	08:26.3	54.3	1.8
25	20:27.1	2	548	00:00.8	14:47.6	00:05.9	14:54.3	72.9	1.4
30	25:59.3	2	699	00:01.8	19:46.7	00:04.7	19:53.2	76.5	1.3

Table C.1: The speed increase from using a multi-processor implementation. A sample x-ray image of size 3600 x 1200 pixels was used. Calculations were spread across $P = 16$ processors in 8 machines, and calculation times are quoted in min:sec.

	Standard	Reduced overlap parallelised AMSS						Improvement	
	Time	Image		Time (min:sec)					
Scale	Calculate	Stripes	Overlap	Split	Calculate	Combine	Total	%	x
1	00:27.1	16	3	00:00.8	00:10.5	00:06.9	00:18.1	66.8	1.5
2	01:01.5	16	6	00:00.8	00:13.1	00:07.9	00:21.8	35.4	2.8
3	01:34.2	16	11	00:00.8	00:13.9	00:06.3	00:21.0	22.3	4.5
4	02:12.4	16	16	00:00.8	00:20.0	00:06.1	00:26.9	20.3	4.9
5	02:51.5	16	21	00:00.8	00:23.2	00:04.5	00:28.4	16.6	6.0
6	03:38.9	16	27	00:00.8	00:25.1	00:05.9	00:31.9	14.6	6.9
7	04:19.9	16	33	00:00.8	00:31.3	00:04.9	00:37.0	14.3	7.0
8	05:01.8	16	40	00:00.8	00:35.6	00:08.7	00:45.2	15.0	6.7
9	05:48.2	16	47	00:00.9	00:43.1	00:04.3	00:48.2	13.8	7.2
10	06:31.6	16	54	00:00.9	00:53.6	00:03.1	00:57.6	14.7	6.8
11	07:16.1	16	61	00:00.9	00:56.1	00:03.3	01:00.3	13.8	7.2
12	08:16.5	16	69	00:00.9	01:04.5	00:03.2	01:08.7	13.8	7.2
13	09:01.0	16	76	00:01.0	01:15.3	00:03.4	01:19.6	14.7	6.8
14	09:56.7	16	84	00:01.0	01:24.0	00:03.3	01:28.3	14.8	6.8
15	10:46.8	16	92	00:01.0	01:33.7	00:03.4	01:38.1	15.2	6.6
16	11:38.6	14	101	00:01.0	01:45.2	00:05.0	01:51.2	15.9	6.3
17	12:25.9	13	109	00:01.0	02:03.2	00:03.4	02:07.6	17.1	5.8
18	13:28.6	12	118	00:00.9	02:17.1	00:04.1	02:22.1	17.6	5.7
19	14:22.9	11	127	00:01.0	02:42.3	00:03.5	02:46.7	19.3	5.2
20	15:32.2	11	136	00:01.0	02:55.6	00:04.2	03:00.8	19.4	5.2
25	20:27.1	8	183	00:01.0	05:07.3	00:12.7	05:21.0	26.2	3.8
30	25:59.3	6	233	00:01.0	08:10.3	00:3.9	08:15.1	31.8	3.1

Table C.2: The speed increase from using a multi-processor implementation, along with a reduction in overlap from n to $\lfloor \frac{n}{3} \rfloor$ pixels. A sample x-ray image of size 3600 x 1200 pixels was used. Calculations were spread across $P = 16$ processors in 8 machines, and calculation times are quoted in min:sec.

	Standard	Incremental iteration parallelised AMSS			Improvement	
	Time	Image		Time (min:sec)		
Scale	Calculate	Stripes	Overlap	Total	%	x
1	00:27.1	16	8	00:12.0	44.3	2.3
2	01:01.5	16	19	00:26.0	42.3	2.4
3	01:34.2	16	32	00:39.0	41.4	2.4
4	02:12.4	16	48	00:52.0	39.3	2.5
5	02:51.5	16	64	01:06.0	38.5	2.6
6	03:38.9	16	82	01:21.0	37.0	2.7
7	04:19.9	15	100	01:37.0	37.3	2.7
8	05:01.8	12	120	01:53.0	37.4	2.7
9	05:48.2	10	140	02:12.0	37.9	2.6
10	06:31.6	9	162	02:29.0	38.1	2.6
11	07:16.1	8	183	02:48.0	38.5	2.6
12	08:16.5	7	206	03:05.0	37.3	2.7
13	09:01.0	6	229	03:23.0	37.5	2.7
14	09:56.7	5	253	03:42.0	37.2	2.7
15	10:46.8	5	277	04:01.0	37.3	2.7
16	11:38.6	4	302	04:22.0	37.5	2.7
17	12:25.9	4	328	04:39.0	37.4	2.7
18	13:28.6	4	354	04:56.0	36.6	2.7
19	14:22.9	3	380	05:16.0	36.6	2.7
20	15:32.2	3	407	05:35.0	35.9	2.8
25	20:27.1	2	548	07:20.0	35.9	2.8
30	25:59.3	2	699	09:06.0	35.0	2.9

Table C.3: The speed increase from using the incremental iteration parallelised AMSS implementation. A sample x-ray image of size 3600 x 1200 pixels was used. Calculations were spread across $P = 16$ processors in 8 machines, and calculation times are quoted in min:sec.