

TABLE B.1  
Computational time results (in millisecond) of three SB algorithms with the shape being a rectangle or hypercube and  $\theta = 0.005$

$d$	$N$	$\delta$	Method	$\gamma$						
				$\gamma = 0^\circ$	$\gamma = 30^\circ$	$\gamma = 60^\circ$	$\gamma = 90^\circ$	$\gamma = 120^\circ$	$\gamma = 150^\circ$	$\gamma = 180^\circ$
$d = 2$	$N = 100$	$\delta = 1$	FSB-1	241.53	239.14	232.90	232.30	231.85	230.87	230.76
			FSB-2	238.83	242.54	242.92	241.73	244.26	243.78	244.51
			DSB	217.19	215.65	218.33	218.03	222.58	218.18	218.15
		$\delta = 10$	FSB-1	227.14	226.97	228.46	229.26	228.90	234.01	232.00
			FSB-2	245.51	243.99	246.79	245.18	244.67	245.14	245.18
			DSB	217.60	215.13	221.38	219.15	219.35	219.43	218.73
		$\delta = 100$	FSB-1	229.83	230.69	232.10	232.72	232.84	233.79	234.02
			FSB-2	226.12	228.58	224.77	224.04	225.66	225.41	244.30
			DSB	221.50	220.60	221.25	226.48	228.54	231.82	232.85
	$N = 1000$	$\delta = 1$	FSB-1	244.48	242.56	256.81	247.13	256.05	259.57	260.32
			FSB-2	245.51	247.71	259.42	254.24	263.77	270.32	270.95
			DSB	228.02	239.06	271.84	255.98	274.23	281.26	272.48
		$\delta = 10$	FSB-1	235.59	236.47	247.89	243.06	251.33	260.78	258.69
			FSB-2	249.78	251.04	267.01	257.03	265.11	270.88	269.81
			DSB	241.53	235.20	257.89	241.82	260.05	267.61	262.46
		$\delta = 100$	FSB-1	235.52	239.20	255.56	243.28	251.02	256.14	255.84
			FSB-2	241.22	235.93	244.87	236.44	244.13	249.63	251.44
			DSB	229.02	229.05	259.46	239.83	257.76	268.83	266.78
$d = 3$	$N = 100$	$\delta = 1$	FSB-1	225.43	224.65	226.03	225.45	227.26	227.21	227.07
			FSB-2	250.38	245.48	240.76	233.03	236.32	238.43	239.57
			DSB	213.05	217.37	208.37	208.81	207.40	208.30	206.82
		$\delta = 10$	FSB-1	223.41	225.11	226.72	224.99	226.29	226.84	226.28
			FSB-2	236.40	236.14	241.63	238.84	236.64	237.45	238.16
			DSB	209.81	211.32	215.40	213.36	216.64	215.07	217.00
		$\delta = 100$	FSB-1	224.15	225.17	227.26	227.41	224.94	225.84	227.04
			FSB-2	231.82	232.16	233.53	232.14	233.57	233.36	236.31
			DSB	215.03	215.75	217.56	215.25	217.84	217.10	213.63
	$N = 1000$	$\delta = 1$	FSB-1	250.94	253.87	274.49	261.57	275.20	273.55	269.06
			FSB-2	264.01	274.35	273.36	260.97	273.84	280.22	278.72
			DSB	227.18	232.93	264.20	247.01	261.30	274.38	271.82
		$\delta = 10$	FSB-1	242.77	245.93	264.47	253.67	264.18	268.05	266.72
			FSB-2	256.65	257.27	276.30	265.59	275.68	282.49	280.14
			DSB	229.35	234.19	286.28	341.13	350.71	363.52	361.45
		$\delta = 100$	FSB-1	241.42	241.03	261.89	251.20	261.95	270.24	271.60
			FSB-2	260.12	259.26	276.40	267.09	279.03	275.70	273.40
			DSB	279.03	277.82	306.12	288.56	367.48	373.01	364.51
$d = 4$	$N = 100$	$\delta = 1$	FSB-1	310.09	312.59	308.08	304.94	304.24	304.22	298.98
			FSB-2	266.40	266.83	271.41	270.44	265.52	268.07	267.17
			DSB	268.13	262.86	265.30	264.04	264.07	284.06	272.07
		$\delta = 10$	FSB-1	287.08	286.55	314.42	294.71	305.26	300.90	307.85
			FSB-2	254.90	255.58	258.61	255.25	256.68	260.87	261.16
			DSB	266.04	261.89	278.42	275.09	278.88	274.50	276.71
		$\delta = 100$	FSB-1	282.39	279.11	284.26	295.23	287.01	289.46	287.59
			FSB-2	254.93	255.13	256.06	255.81	252.48	254.92	264.13
			DSB	284.30	267.37	281.27	275.67	281.02	275.62	279.29
	$N = 1000$	$\delta = 1$	FSB-1	336.02	335.60	321.22	302.09	317.91	327.65	324.48
			FSB-2	299.91	309.65	312.19	291.06	307.32	313.39	307.23
			DSB	297.51	300.86	331.23	313.40	333.37	370.49	350.68
		$\delta = 10$	FSB-1	300.02	298.91	324.15	310.47	317.72	326.54	324.87
			FSB-2	286.28	312.22	314.54	297.60	314.60	314.37	310.81
			DSB	304.33	303.58	335.95	327.02	345.98	355.70	352.37
		$\delta = 100$	FSB-1	299.13	301.90	306.73	305.55	319.23	315.29	314.78
			FSB-2	306.71	293.76	316.98	307.26	317.96	332.96	325.67
			DSB	304.71	306.06	340.45	329.57	354.32	352.67	352.89

TABLE B.2  
Computational time results (in millisecond) of three SB algorithms with the shape being a rectangle or hypercube and  $\theta = 0.001$

$d$	$N$	$\delta$	Method	$\gamma$						
				$\gamma = 0^\circ$	$\gamma = 30^\circ$	$\gamma = 60^\circ$	$\gamma = 90^\circ$	$\gamma = 120^\circ$	$\gamma = 150^\circ$	$\gamma = 180^\circ$
$d = 2$	$N = 100$	$\delta = 1$	FSB-1	239.83	240.64	241.11	236.71	238.21	240.30	239.64
			FSB-2	226.89	227.33	218.49	217.15	217.89	218.66	219.99
			DSB	236.40	240.17	242.05	239.01	237.06	236.78	238.75
		$\delta = 10$	FSB-1	233.45	233.36	235.52	232.04	232.76	234.42	236.59
			FSB-2	227.12	226.78	229.68	228.07	228.12	222.57	219.51
			DSB	245.95	248.07	261.49	258.09	255.40	253.38	249.97
		$\delta = 100$	FSB-1	233.73	235.87	239.94	235.59	238.97	239.46	247.61
			FSB-2	226.88	226.20	227.28	232.01	229.46	239.92	225.31
			DSB	235.74	240.78	264.33	248.92	260.15	276.43	260.60
	$N = 1000$	$\delta = 1$	FSB-1	242.71	244.18	257.88	251.22	257.12	261.65	259.95
			FSB-2	230.72	232.33	241.50	233.73	245.24	250.84	250.96
			DSB	244.89	246.07	266.45	260.61	271.05	275.99	271.00
		$\delta = 10$	FSB-1	236.61	239.87	258.17	246.84	251.52	257.90	257.42
			FSB-2	229.62	228.92	243.16	236.00	243.38	251.14	250.50
			DSB	249.57	252.02	275.32	258.86	257.92	271.60	272.72
		$\delta = 100$	FSB-1	241.66	243.29	254.08	248.84	256.04	261.69	266.65
			FSB-2	229.43	229.40	245.35	238.06	247.79	252.43	253.05
			DSB	240.89	243.05	268.51	251.90	267.12	277.33	275.19
$d = 3$	$N = 100$	$\delta = 1$	FSB-1	233.45	233.77	236.64	234.01	235.46	232.46	233.10
			FSB-2	230.94	229.85	231.68	230.81	233.67	228.82	229.63
			DSB	220.09	221.03	219.53	217.80	218.45	219.53	219.99
		$\delta = 10$	FSB-1	231.54	231.25	233.48	232.00	233.16	233.54	232.40
			FSB-2	225.13	225.49	227.68	226.73	227.25	228.00	228.90
			DSB	218.04	220.95	225.52	242.05	245.78	267.12	248.40
		$\delta = 100$	FSB-1	223.84	223.43	233.62	232.39	229.86	230.89	230.66
			FSB-2	224.94	226.13	226.98	225.82	226.34	227.12	227.35
			DSB	241.57	241.02	240.23	236.23	254.85	233.70	245.08
	$N = 1000$	$\delta = 1$	FSB-1	250.00	256.51	272.38	261.83	273.27	267.99	270.30
			FSB-2	239.02	242.90	262.94	251.19	261.79	269.84	269.29
			DSB	254.84	247.25	276.13	254.70	280.50	288.26	284.00
		$\delta = 10$	FSB-1	238.47	241.87	259.61	249.96	262.33	267.59	266.47
			FSB-2	239.58	243.13	263.36	251.15	263.49	269.39	268.77
			DSB	241.17	244.97	272.86	253.66	268.59	305.51	282.33
		$\delta = 100$	FSB-1	239.43	243.47	259.91	249.20	259.78	268.70	268.21
			FSB-2	238.13	244.08	263.26	252.48	263.42	270.78	269.30
			DSB	267.90	283.41	301.03	284.95	304.40	304.87	287.12
$d = 4$	$N = 100$	$\delta = 1$	FSB-1	255.76	256.20	256.17	267.00	302.49	306.02	308.08
			FSB-2	270.85	274.17	273.35	266.85	277.06	294.81	254.82
			DSB	276.95	277.65	269.98	256.23	262.15	257.21	258.70
		$\delta = 10$	FSB-1	281.16	279.97	281.41	286.80	298.47	303.16	303.34
			FSB-2	263.48	253.73	253.79	253.25	254.60	255.31	256.05
			DSB	265.45	264.29	261.84	259.69	260.18	260.26	262.15
		$\delta = 100$	FSB-1	283.13	283.83	286.47	278.56	277.92	286.62	275.47
			FSB-2	255.81	256.43	285.52	283.81	275.12	273.43	276.32
			DSB	265.18	284.02	281.53	284.31	281.03	278.43	276.33
	$N = 1000$	$\delta = 1$	FSB-1	281.54	286.57	303.12	291.073	305.75	314.36	315.05
			FSB-2	300.95	305.57	330.68	318.46	330.50	332.37	302.56
			DSB	314.65	324.48	322.77	306.36	327.11	336.34	335.96
		$\delta = 10$	FSB-1	290.24	292.36	313.62	300.50	314.97	315.94	316.50
			FSB-2	277.06	280.81	299.94	286.40	296.64	302.98	300.85
			DSB	300.10	303.79	330.87	321.21	333.28	341.03	330.46
		$\delta = 100$	FSB-1	290.08	304.09	311.68	297.82	321.51	323.56	325.75
			FSB-2	280.49	286.54	304.33	291.69	302.83	312.04	311.38
			DSB	299.72	302.41	339.55	323.12	344.30	344.86	352.87

TABLE B.3  
Computational time results (in millisecond) of three SB algorithms with the shape being an ellipse or hyperellipsoid and  $\theta = 0.005$

$d$	$N$	$\delta$	Method	$\gamma$						
				$\gamma = 0^\circ$	$\gamma = 30^\circ$	$\gamma = 60^\circ$	$\gamma = 90^\circ$	$\gamma = 120^\circ$	$\gamma = 150^\circ$	$\gamma = 180^\circ$
$d = 2$	$N = 100$	$\delta = 1$	FSB-1	244.57	-	-	-	-	-	-
			FSB-2	241.53	-	-	-	-	-	-
			DSB	230.41	-	-	-	-	-	-
		$\delta = 10$	FSB-1	243.48	243.70	244.15	243.50	242.33	244.30	241.72
			FSB-2	239.67	240.15	241.31	241.31	242.79	242.87	244.32
			DSB	225.77	228.79	231.11	226.97	230.17	234.74	239.79
		$\delta = 100$	FSB-1	239.48	238.44	242.07	241.27	240.88	241.64	245.88
			FSB-2	238.09	238.35	240.62	242.96	244.38	245.21	244.11
			DSB	212.14	213.55	215.27	214.55	226.48	222.64	236.24
	$N = 1000$	$\delta = 1$	FSB-1	251.03	-	-	-	-	-	-
			FSB-2	257.62	-	-	-	-	-	-
			DSB	295.96	-	-	-	-	-	-
		$\delta = 10$	FSB-1	253.80	257.20	250.89	260.56	262.01	255.06	251.88
			FSB-2	246.20	248.62	256.47	253.11	257.29	261.12	261.86
			DSB	295.91	295.25	236.07	227.67	235.27	244.06	240.74
		$\delta = 100$	FSB-1	244.19	247.35	253.00	247.67	253.18	256.00	253.63
			FSB-2	245.24	245.92	265.17	254.32	258.93	264.95	261.50
			DSB	228.99	246.39	258.45	230.81	236.10	245.27	249.58
$d = 3$	$N = 100$	$\delta = 1$	FSB-1	251.26	-	-	-	-	-	-
			FSB-2	235.15	-	-	-	-	-	-
			DSB	221.11	-	-	-	-	-	-
		$\delta = 10$	FSB-1	253.16	252.07	253.34	250.54	252.51	254.40	253.66
			FSB-2	234.60	235.67	236.99	237.03	239.29	237.85	238.55
			DSB	220.67	220.12	229.44	223.69	232.27	225.63	225.49
		$\delta = 100$	FSB-1	246.29	246.18	250.10	252.94	249.82	257.21	252.31
			FSB-2	235.41	228.48	234.19	235.57	244.65	238.67	238.35
			DSB	219.31	219.33	222.64	219.51	233.27	233.09	222.15
	$N = 1000$	$\delta = 1$	FSB-1	262.58	-	-	-	-	-	-
			FSB-2	253.63	-	-	-	-	-	-
			DSB	243.15	-	-	-	-	-	-
		$\delta = 10$	FSB-1	266.30	275.95	275.25	275.44	273.01	279.66	277.66
			FSB-2	250.96	254.04	270.22	259.79	271.39	279.69	275.52
			DSB	242.77	246.79	277.46	275.44	292.89	301.23	287.22
		$\delta = 100$	FSB-1	261.01	267.04	264.22	271.39	266.61	278.75	271.59
			FSB-2	251.62	254.96	273.06	260.94	272.74	280.34	275.42
			DSB	249.39	257.11	290.03	265.27	285.38	295.33	290.17
$d = 4$	$N = 100$	$\delta = 1$	FSB-1	245.38	-	-	-	-	-	-
			FSB-2	243.53	-	-	-	-	-	-
			DSB	266.37	-	-	-	-	-	-
		$\delta = 10$	FSB-1	246.54	248.12	252.38	255.85	243.98	246.10	249.63
			FSB-2	237.29	236.91	239.37	237.90	239.35	240.16	241.61
			DSB	258.49	256.95	257.61	257.50	261.61	261.22	261.46
		$\delta = 100$	FSB-1	247.04	244.42	255.65	261.13	262.17	263.31	249.53
			FSB-2	239.56	238.89	242.89	239.84	241.65	245.95	240.07
			DSB	268.79	267.28	272.95	270.78	263.56	266.07	269.82
	$N = 1000$	$\delta = 1$	FSB-1	269.78	-	-	-	-	-	-
			FSB-2	270.94	-	-	-	-	-	-
			DSB	331.22	-	-	-	-	-	-
		$\delta = 10$	FSB-1	292.69	297.10	292.69	283.02	288.16	297.42	292.91
			FSB-2	274.76	276.88	296.49	280.55	292.65	299.95	297.45
			DSB	307.25	312.94	346.11	326.40	346.25	357.98	357.66
		$\delta = 100$	FSB-1	268.85	270.68	310.73	295.48	309.18	319.50	294.33
			FSB-2	269.00	273.20	291.08	293.57	295.05	301.96	299.61
			DSB	325.84	333.11	361.34	334.49	360.52	364.65	358.13

TABLE B.4  
Computational time results (in millisecond) of three SB algorithms with the shape being an ellipse or hyperellipsoid and  $\theta = 0.001$

$d$	$N$	$\delta$	Method	$\gamma$						
				$\gamma = 0^\circ$	$\gamma = 30^\circ$	$\gamma = 60^\circ$	$\gamma = 90^\circ$	$\gamma = 120^\circ$	$\gamma = 150^\circ$	$\gamma = 180^\circ$
$d = 2$	$N = 100$	$\delta = 1$	FSB-1	226.86	-	-	-	-	-	-
			FSB-2	233.87	-	-	-	-	-	-
			DSB	275.52	-	-	-	-	-	-
		$\delta = 10$	FSB-1	234.40	233.67	242.45	236.90	242.98	242.27	241.06
			FSB-2	232.78	232.15	242.66	241.83	243.59	243.30	242.60
			DSB	235.35	216.13	203.73	199.20	199.90	203.49	204.05
		$\delta = 100$	FSB-1	237.27	237.44	238.38	238.16	239.71	240.06	240.91
			FSB-2	234.51	233.24	245.09	243.18	243.94	245.78	243.88
			DSB	205.76	205.95	204.48	203.79	205.60	204.55	207.59
	$N = 1000$	$\delta = 1$	FSB-1	243.33	-	-	-	-	-	-
			FSB-2	237.24	-	-	-	-	-	-
			DSB	296.91	-	-	-	-	-	-
		$\delta = 10$	FSB-1	238.07	236.44	243.29	238.92	244.55	249.44	247.78
			FSB-2	238.05	239.04	246.82	241.87	247.19	251.26	249.51
			DSB	271.74	269.19	292.36	280.77	285.65	293.57	283.18
		$\delta = 100$	FSB-1	241.69	241.98	248.96	243.45	248.35	250.81	248.35
			FSB-2	240.48	242.08	251.71	251.32	245.18	248.07	246.64
			DSB	272.92	285.28	282.47	275.07	280.51	303.74	297.08
$d = 3$	$N = 100$	$\delta = 1$	FSB-1	237.59	-	-	-	-	-	-
			FSB-2	245.85	-	-	-	-	-	-
			DSB	206.50	-	-	-	-	-	-
		$\delta = 10$	FSB-1	237.22	237.42	239.57	238.15	239.61	239.21	238.02
			FSB-2	244.12	244.17	245.33	243.77	245.72	243.84	242.91
			DSB	207.22	212.60	218.15	205.27	209.47	215.03	214.16
		$\delta = 100$	FSB-1	235.33	236.73	236.58	238.21	237.58	239.76	240.12
			FSB-2	238.96	239.11	240.17	240.75	241.78	244.62	244.85
			DSB	234.99	224.61	227.04	227.04	225.87	228.77	227.67
	$N = 1000$	$\delta = 1$	FSB-1	261.73	-	-	-	-	-	-
			FSB-2	255.74	-	-	-	-	-	-
			DSB	275.44	-	-	-	-	-	-
		$\delta = 10$	FSB-1	262.20	266.14	283.76	270.38	278.11	290.20	280.17
			FSB-2	256.85	260.14	278.91	266.16	278.55	283.25	282.32
			DSB	244.63	248.80	293.08	269.85	298.49	301.75	294.43
		$\delta = 100$	FSB-1	253.21	260.51	276.66	263.20	274.24	280.75	277.07
			FSB-2	256.32	261.41	280.08	268.67	277.87	285.29	282.41
			DSB	267.69	261.01	291.66	271.12	293.45	301.79	297.80
$d = 4$	$N = 100$	$\delta = 1$	FSB-1	254.79	-	-	-	-	-	-
			FSB-2	244.08	-	-	-	-	-	-
			DSB	305.24	-	-	-	-	-	-
		$\delta = 10$	FSB-1	271.07	272.39	276.27	276.82	281.63	285.25	287.03
			FSB-2	243.44	243.83	247.01	247.70	247.48	251.63	251.11
			DSB	298.69	296.90	302.87	307.15	304.72	308.78	312.68
		$\delta = 100$	FSB-1	249.25	248.58	264.83	257.53	269.63	269.13	304.89
			FSB-2	247.35	252.48	249.95	248.46	249.49	251.76	249.97
			DSB	269.83	298.47	302.36	314.92	315.55	317.18	310.48
	$N = 1000$	$\delta = 1$	FSB-1	297.98	-	-	-	-	-	-
			FSB-2	298.97	-	-	-	-	-	-
			DSB	362.63	-	-	-	-	-	-
		$\delta = 10$	FSB-1	296.40	307.24	327.69	320.00	329.82	339.55	333.89
			FSB-2	300.08	304.71	304.11	291.30	303.53	309.81	304.03
			DSB	357.90	369.52	400.71	383.09	402.39	410.48	404.85
		$\delta = 100$	FSB-1	270.46	271.53	293.79	283.59	313.20	318.66	314.58
			FSB-2	287.98	281.49	290.98	286.03	301.59	309.30	303.12
			DSB	328.45	367.24	400.01	379.96	407.25	420.47	411.37