Table 2: The performance of ADMM3c, SDPAD, ADMM3g, 2EBD on θ_+, FAP, QAP, BIQ and RCP problems (accuracy = 10^{-6}). In the table, "3c" and "3g" stand for ADMM3c and ADMM3g, respectively. The computation time is in the format of "hours:minutes:seconds".

			iteration	$\eta\|\eta\|\eta\|\hat{\eta}$	η_g	time
problem	$m_E; m_I$	n_s;	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD
theta4	1949;0	200;	304 | 307 | 519 | 701	9.6-7 | 9.9-7 | 9.8-7 | 9.9-7	-1.4-6 | 3.0-7 | -6.4-7 | 1.5-6	06 | 05 | 09 | 13
theta42	5986;0	200;	179 | 151 | 269 | 345	9.6-7 | 9.6-7 | 9.9-7 | 9.8-7	8.3-8 | 3.3-7 | -2.1-9 | 9.5-7	03 | 03 | 05 | 06
theta6	4375;0	300;	316 | 318 | 553 | 671	8.5-7 | 9.8-7 | 9.9-7 | 9.9-7	-2.0-6 | -1.2-6 | 8.6-7 | 1.4-6	13 | 12 | 25 | 31
theta62	13390;0	300;	178 | 129 | 222 | 336	9.5-7 | 8.9-7 | 9.6-7 | 9.9-7	-1.1-7 | 1.3-6 | -6.8-8 | 1.4-6	08 | 07 | 11 | 15
theta8	7905;0	400;	316 | 325 | 578 | 470	9.7-7 | 8.6-7 | 9.7-7 | 9.8-7	-2.5-6 | 1.7-6 | 9.1-7 | 1.2-6	24 | 24 | 51 | 40
theta82	23872;0	400;	157 | 130 | 228 | 343	9.7-7 | 8.4-7 | 9.3-7 | 9.7-7	-2.3-7 | 1.8-6 | 5.3-7 | 1.8-6	13 | 13 | 23 | 30
theta83	39862;0	400;	154 | 111 | 203 | 306	9.5-7 | 9.9-7 | 9.6-7 | 9.9-7	-1.0-7 | 6.0-7 | 3.6-7 | 2.4-6	14 | 13 | 20 | 28
theta10	12470;0	500;	354 | 351 | 636 | 490	8.5-7 | 9.9-7 | 9.9-7 | 9.9-7	-2.5-6 | -7.8-7 | 7.4-7 | 1.5-6	45 | 42 | 1:34 | 1:11
theta102	37467;0	500;	157 | 130 | 232 | 355	9.5-7 | 9.0-7 | 9.7-7 | 9.9-7	-6.0-7 | 2.1-6 | 9.0-7 | 2.2-6	23 | 23 | 36 | 54
theta103	62516;0	500;	144 | 108 | 199 | 323	9.2-7 | 9.8-7 | 9.9-7 | 9.8-7	-3.0-8 | 5.9-7 | 1.8-7 | 2.6-6	22 | 21 | 32 | 49
theta104	87245;0	500;	169 | 123 | 226 | 338	9.3-7 | 9.8-7 | 9.0-7 | 9.9-7	-9.2-8 | 1.1-6 | 4.2-7 | 3.2-6	24 | 20 | 36 | 51
theta12	17979;0	600;	362 | 366 | 648 | 494	9.0-7 | 8.8-7 | 9.6-7 | 9.2-7	-2.2-6 | 1.0-6 | 1.2-6 | 1.3-6	1:14 | 1:11 | 2:28 | 1:52
theta123	90020;0	600;	156 | 107 | 197 | 345	9.3-7 | 9.9-7 | 9.5-7 | 9.9-7	-6.0-8 | 5.1-7 | 1.4-7 | 2.6-6	35 | 33 | 49 | 1:26
san200-0.7-1	5971;0	200;	1924 | 5566 | 5142 | 139	9.8-7 | 9.6-7 | 9.9-7 | 9.5-7	-1.1-5 | -4.0-6 | 1.6-6 | -1.6-6	17 | 47 | 53 | 02
sanr200-0.7	6033;0	200;	187 | 158 | 260 | 320	9.4-7 | 9.2-7 | 9.9-7 | 9.7-7	-1.4-7 | 3.5-8 | 1.3-7 | 1.1-6	03 | 04 | 05 | 06
c-fat200-1	18367;0	200;	233 | 444 | 472 | 330	9.8-7 | 9.9-7 | 9.5-7 | 9.9-7	-6.9-7 | -1.2-6 | -1.1-6 | 2.1-6	03 | 06 | 06 | 04
hamming-8-4	11777;0	256;	124 | 104 | 179 | 214	4.7-7 | 9.6-7 | 8.5-7 | 8.9-7	-5.3-6 | 2.1-6 | -1.4-6 | 1.0-5	02 | 03 | 04 | 04
hamming-9-8	2305;0	512;	2413 | 3100 | 4332 | 938	9.6-7 | 9.6-7 | 9.3-7 | 9.0-7	-1.2-5 | -6.9-7 | 5.7-7 | 5.6-6	3:07 | 4:20 | 6:56 | 1:36
hamming-10-2	23041;0	1024;	657 | 651 | 871 | 902	8.7-7 | 9.4-7 | 9.8-7 | 8.8-7	7.6-6 | -2.6-6 | 7.9-7 | 3.4-5	3:05 | 5:17 | 4:43 | 3:47
hamming-7-5-6	1793;0	128;	510 | 603 | 701 | 659	8.7-7 | 8.6-7 | 9.9-7 | 9.1-7	-8.4-6 | 9.2-7 | 1.2-6 | 1.8-6	04 | 05 | 05 | 04
hamming-8-3-4	16129;0	256;	232 | 189 | 297 | 180	7.8-7 | 5.5-7 | 9.5-7 | 9.0-7	2.0-7 | 9.9-7 | 1.6-6 | -3.5-6	06 | 04 | 07 | 03
hamming-9-5-6	53761;0	512;	461 | 507 | 691 | 563	9.5-7 | 9.5-7 | 9.6-7 | 8.9-7	-1.2-5 | -1.9-6 | 1.3-6 | 8.0-6	45 | 54 | 1:20 | 58
brock200-1	5067;0	200;	182 | 159 | 249 | 334	9.6-7 | 9.5-7 | 9.6-7 | 9.7-7	-6.6-8 | 2.4-9 | 4.9-7 | 1.1-6	04 | 03 | 05 | 06
brock200-4	6812;0	200;	172 | 138 | 228 | 297	9.2-7 | 9.7-7 | 9.3-7 | 9.9-7	-1.1-7 | 7.2-8 | 5.5-8 | 1.5-6	04 | 03 | 05 | 06
brock400-1	20078;0	400;	171 | 155 | 268 | 354	8.9-7 | 9.9-7 | 9.4-7 | 9.7-7	-1.6-6 | 1.6-6 | -1.2-6 | 1.7-6	14 | 14 | 25 | 31
keller4	5101;0	171;	317 | 526 | 656 | 634	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-3.2-8 | -6.2-7 | 2.3-7 | 1.5-6	04 | 08 | 07 | 07
p-hat300-1	33918;0	300;	649 | 791 | 1901 | 759	9.9-7 | 9.9-7 | 8.7-7 | 9.9-7	-1.3-7 | 1.3-6 | 7.5-7 | 1.8-6	26 | 35 | 1:28 | 33
G43	9991;0	1000;	1154 | 1147 | 2145 | 934	9.8-7 | 9.4-7 | 9.7-7 | 9.9-7	-3.1-6 | 1.7-6 | 1.5-6 | 2.0-6	13:04 | 10:20 | 21:38 | 13:00
G44	9991;0	1000;	1151 | 1144 | 2141 | 968	9.3-7 | 9.9-7 | 9.9-7 | 9.9-7	-2.9-6 | 1.6-6 | 1.5-6 | 1.6-6	12:13 | 10:11 | 21:08 | 13:15
G45	9991;0	1000;	1175 | 1185 | 2181 | 966	9.5-7 | 9.4-7 | 9.8-7 | 9.9-7	2.9-6 | -1.0-6 | -1.1-6 | 1.6-6	13:24 | 10:36 | 21:22 | 13:28
G46	9991;0	1000;	1199 | 1180 | 2159 | 943	9.9-7 | 9.8-7 | 9.5-7 | 9.9-7	-3.2-6 | -1.0-6 | 7.7-7 | 1.4-6	12:55 | 10:42 | 21:47 | 12:58
G47	9991;0	1000;	1186 | 1137 | 2154 | 992	9.5-7 | 9.5-7 | 9.9-7 | 9.9-7	2.9-6 | -9.4-7 | 8.3-7 | 1.2-6	13:18 | 10:28 | 21:00 | 13:50
G51	5910;0	1000;	6207 | 10361 | 25000 | 9586	9.9-7 | 9.9-7 | 2.8-6 | 9.9-7	3.7-7 | 2.6-7 | 6.9-7 | 5.6-7	1:21:52 | 2:11:03 | 6:11:20 | 2:31:30
G52	5917;0	1000;	11463 | 14163 | 25000 | 12124	9.9-7 | 9.9-7 | 3.0-6 | 9.9-7	4.2-7 | 4.5-7 | 9.9-7 | 6.9-7	2:26:28 | 2:46:25 | 6:00:51 | 3:15:11
G53	5915;0	1000;	13289 | 23865 | 25000 | 20623	9.9-7 | 9.9-7 | 2.7-6 | 9.9-7	2.6-6 | 2.9-6 | 4.4-6 | 4.2-6	2:49:53 | 4:48:56 | 6:04:31 | 5:49:06
G54	5917;0	1000;	3262 | 7542 | 6253 | 5136	9.7-7 | 9.9-7 | 9.9-7 | 9.9-7	3.1-6 | 4.6-7 | -1.7-6 | 1.3-6	38:42 | 1:26:47 | 1:28:08 | 1:17:01
1dc.128	1472;0	128;	2260 | 1431 | 3702 | 1046	9.9-7 | 9.9-7 | 9.9-7 | 9.8-7	2.8-6 | 1.9-6 | 2.7-6 | 4.1-6	16 | 14 | 27 | 07
1et.128	673;0	128;	313 | 370 | 534 | 478	9.6-7 | 9.8-7 | 9.8-7 | 9.7-7	2.7-6 | -3.3-7 | 1.4-6 | 1.5-6	02 | 03 | 03 | 03
1tc.128	513;0	128;	756 | 1116 | 1351 | 233	8.1-7 | 9.9-7 | 9.8-7 | 9.6-7	5.1-6 | -3.5-8 | -2.2-6 | 1.6-6	04 | 05 | 07 | 01
1zc.128	1121;0	128;	164 | 191 | 230 | 301	9.4-7 | 9.8-7 | 9.7-7 | 8.6-7	-4.8-6 | 1.4-6 | -1.1-6 | 5.9-6	01 | 02 | 01 | 02

Table 2: The performance of ADMM3c, SDPAD, ADMM3g, 2EBD on θ_+, FAP, QAP, BIQ and RCP problems (accuracy = 10^{-6}). In the table, "3c" and "3g" stand for ADMM3c and ADMM3g, respectively. The computation time is in the format of "hours:minutes:seconds".

			iteration	$\eta\|\eta\|\eta\|\hat{\eta}$	η_g	time
problem	$m_E; m_I$	n_s;	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD
1dc.256	3840;0	256;	2399 | 8744 | 5596 | 376	9.5-7 | 9.9-7 | 9.8-7 | 9.4-7	-1.8-5 | 5.1-6 | 4.8-6 | -7.0-7	44 | 2:12 | 1:44 | 10
1et.256	1665;0	256;	893 | 1421 | 1152 | 25000	9.9-7 | 9.9-7 | 9.9-7 | **2.5-3**	-2.7-7 | 1.0-6 | -3.5-8 | **-1.2-3**	22 | 37 | 28 | 13:38
1tc.256	1313;0	256;	1335 | 1979 | 2801 | 3075	9.9-7 | 9.9-7 | 9.0-7 | 9.9-7	4.2-7 | 1.4-6 | 6.7-7 | 1.7-6	37 | 55 | 1:24 | 1:20
1zc.256	2817;0	256;	237 | 238 | 389 | 326	6.1-7 | 8.6-7 | 9.9-7 | 9.9-7	-4.9-6 | -1.3-6 | 1.1-6 | 5.6-6	06 | 07 | 08 | 07
1dc.512	9728;0	512;	2216 | 2269 | 2675 | 2634	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	4.1-7 | 2.2-6 | 6.4-7 | 3.3-6	5:03 | 7:01 | 6:28 | 6:14
1et.512	4033;0	512;	990 | 1470 | 3101 | 1530	9.9-7 | 9.9-7 | 9.7-7 | 9.9-7	-1.1-7 | 3.9-6 | -7.6-9 | 5.6-6	1:58 | 3:15 | 7:40 | 3:08
1tc.512	3265;0	512;	2494 | 3340 | 3501 | 3807	9.9-7 | 9.9-7 | 8.8-7 | 9.9-7	9.4-7 | 2.5-6 | 6.6-7 | 3.3-6	5:04 | 10:15 | 7:59 | 9:03
2dc.512	54896;0	512;	2956 | 2701 | 5602 | 2173	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	8.5-6 | 7.5-6 | 1.4-5 | 1.6-5	5:34 | 6:36 | 13:05 | 4:45
1zc.512	6913;0	512;	490 | 1056 | 728 | 2120	8.5-7 | 9.9-7 | 9.8-7 | 9.9-7	4.7-6 | 2.2-7 | 1.2-6 | 3.0-7	54 | 3:08 | 1:28 | 4:16
1dc.1024	24064;0	1024;	2620 | 2681 | 3301 | 3641	9.9-7 | 9.9-7 | 9.2-7 | 9.9-7	1.3-6 | 3.4-6 | 2.3-6 | 4.0-6	32:22 | 45:21 | 46:28 | 53:12
1et.1024	9601;0	1024;	1144 | 2563 | 2263 | 2609	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	1.3-6 | 5.6-6 | -2.3-9 | 5.9-6	12:54 | 39:53 | 30:09 | 35:35
1tc.1024	7937;0	1024;	2732 | 6545 | 25000 | 6675	9.9-7 | 9.9-7 | 1.8-6 | 9.9-7	4.5-6 | 4.5-6 | 6.8-6 | 4.2-6	32:08 | 1:48:31 | 6:05:36 | 1:40:06
1zc.1024	16641;0	1024;	711 | 770 | 1101 | 25000	7.7-7 | 9.9-7 | 9.9-7 | 3.1-5	5.4-6 | 2.0-6 | 1.2-6 | **7.9-4**	7:19 | 12:18 | 13:24 | 7:48:20
2dc.1024	169163;0	1024;	4135 | 1896 | 6901 | 1891	9.9-7 | 9.9-7 | 9.7-7 | 9.9-7	1.3-5 | 1.0-5 | 2.3-5 | 1.5-5	45:59 | 29:02 | 1:34:09 | 24:59
1dc.2048	58368;0	2048;	4153 | 7277 | 5255 | 8476	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	4.2-6 | 6.4-6 | -2.4-6 | 6.5-6	5:47:45 | 13:59:49 | 8:02:43 | 16:04:13
1et.2048	22529;0	2048;	3039 | 4422 | 4101 | 4739	9.9-7 | 9.9-7 | 8.8-7 | 9.9-7	1.1-6 | 4.8-6 | 4.2-7 | 7.8-6	4:04:34 | 8:47:18 | 6:33:13 | 8:28:46
1tc.2048	18945;0	2048;	2876 | 7329 | 8991 | 7482	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	1.5-6 | 5.5-6 | 1.7-6 | 5.6-6	3:50:16 | 13:29:15 | 14:15:48 | 13:50:32
2dc.2048	504452;0	2048;	2997 | 2147 | 4048 | 1849	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	8.3-6 | 1.0-5 | 2.0-5 | 2.2-5	3:52:42 | 4:13:47 | 6:04:58 | 3:07:46
fap08	120;0	120;	420 | 725 | 598 | 976	9.9-7 | 9.9-7 | 9.9-7 | 9.4-7	-1.5-6 | -2.6-6 | -4.1-6 | -3.5-6	03 | 05 | 04 | 06
fap09	174;0	174;	419 | 464 | 723 | 728	9.7-7 | 9.9-7 | 9.9-7 | 9.9-7	1.2-6 | 1.0-6 | 9.4-7 | -5.1-8	05 | 04 | 09 | 07
fap10	183;0	183;	1424 | 2313 | 5145 | 2774	6.0-7 | 9.9-7 | 9.9-7 | 9.9-7	3.7-6 | **-1.3-4** | -4.1-5 | -6.8-5	25 | 27 | 1:31 | 42
fap11	252;0	252;	1559 | 2585 | 4355 | 2771	5.3-7 | 9.9-7 | 9.9-7 | 9.7-7	-1.9-5 | **-2.2-4** | -5.5-5 | **-1.1-4**	50 | 1:07 | 2:25 | 1:18
fap12	369;0	369;	1830 | 3394 | 7742 | 3325	8.4-7 | 9.9-7 | 9.9-7 | 9.9-7	-2.6-5 | **-2.2-4** | -5.0-5 | **-1.3-4**	1:55 | 3:32 | 9:19 | 3:08
fap25	2118;0	2118;	5799 | 5495 | 11189 | 4498	9.9-7 | 9.9-7 | 9.8-7 | 9.9-7	-3.2-5 | **-1.1-4** | -1.6-5 | -7.1-5	10:55:33 | 13:26:47 | 20:20:27 | 8:11:50
fap36	4110;0	4110;	2824 | 4445 | 7424 | 3500	9.9-7 | 9.9-7 | 9.8-7 | 9.8-7	-1.7-5 | -3.0-5 | -4.0-6 | -2.8-5	30:57:53 | 78:43:03 | 89:33:09 | 43:37:44
bur26a	1051;0	676;	25000 | 25000 | 25000 | 25000	5.6-6 | 1.1-5 | 2.7-5 | 8.9-6	-6.3-5 | -7.7-5 | -9.1-5 | -8.2-5	2:05:11 | 2:07:44 | 2:02:50 | 2:38:24
bur26b	1051;0	676;	25000 | 25000 | 25000 | 25000	6.8-6 | 1.1-5 | 2.3-5 | 9.3-6	-5.7-5 | -8.0-5 | -9.4-5 | -7.5-5	2:07:13 | 1:57:30 | 1:58:25 | 2:49:59
bur26c	1051;0	676;	25000 | 25000 | 25000 | 25000	4.2-6 | 1.4-5 | 3.2-5 | 1.4-5	-4.5-5 | **-1.2-4** | **-1.2-4** | **-1.8-4**	2:05:11 | 2:02:35 | 2:06:14 | 2:50:08
bur26d	1051;0	676;	25000 | 25000 | 25000 | 25000	6.4-6 | 1.5-5 | 3.2-5 | 1.3-5	-8.4-5 | **-1.2-4** | **-1.2-4** | **-1.4-4**	2:02:24 | 1:51:20 | 2:05:16 | 2:53:07
bur26e	1051;0	676;	25000 | 25000 | 25000 | 25000	3.1-6 | 6.4-6 | 4.7-6 | 1.4-5	-2.8-5 | -3.6-5 | -3.6-5 | **-1.9-4**	2:03:18 | 2:28:06 | 2:03:16 | 2:46:03
bur26f	1051;0	676;	20887 | 25000 | 25000 | 25000	9.9-7 | 8.1-6 | 7.0-6 | 1.2-5	-1.0-5 | -4.8-5 | -4.3-5 | -7.5-5	1:45:08 | 2:09:11 | 2:02:20 | 2:44:28
bur26g	1051;0	676;	17910 | 25000 | 25000 | 25000	8.6-7 | 1.6-6 | 2.4-6 | 7.8-6	-6.3-6 | -4.0-5 | -3.1-5 | -6.9-5	1:29:22 | 1:57:13 | 2:00:33 | 2:46:34
bur26h	1051;0	676;	23208 | 25000 | 25000 | 25000	9.4-7 | 1.4-6 | 2.3-6 | 2.3-5	-1.4-6 | -2.3-5 | -2.8-5 | **-1.7-4**	1:57:33 | 2:01:12 | 1:58:07 | 2:54:20
chr12a	232;0	144;	3645 | 6509 | 5809 | 25000	9.1-7 | 9.1-7 | 7.7-7 | 2.4-6	-8.7-5 | **1.8-4** | 8.8-5 | **-2.6-4**	25 | 40 | 40 | 6:21
chr12b	232;0	144;	2833 | 4552 | 4405 | 20981	9.4-7 | 9.6-7 | 9.3-7 | 9.5-7	**2.4-4** | **-1.9-4** | **-1.8-4** | **2.0-4**	18 | 26 | 29 | 5:19
chr12c	232;0	144;	25000 | 25000 | 25000 | 25000	4.9-6 | 5.9-6 | 1.5-5 | 4.5-6	**-4.4-4** | **-2.2-4** | **-3.1-4** | **-1.5-4**	3:30 | 4:27 | 3:50 | 6:20
chr15a	358;0	225;	25000 | 25000 | 25000 | 25000	7.9-6 | 1.4-5 | 4.6-5 | 3.0-5	**-1.9-3** | **-1.6-3** | **-2.3-3** | **-4.5-3**	8:02 | 12:07 | 9:12 | 14:48
chr15b	358;0	225;	3621 | 12507 | 7285 | 25000	8.6-7 | 9.9-7 | 9.9-7 | 2.1-5	**6.2-4** | **4.4-4** | **-3.9-4** | **-1.1-3**	1:10 | 4:40 | 2:27 | 14:26
chr15c	358;0	225;	2919 | 8994 | 6153 | 25000	9.0-7 | 9.8-7 | 9.8-7 | 4.6-5	**5.4-4** | **-3.5-4** | **3.7-4** | **-1.5-2**	58 | 3:36 | 2:03 | 14:27
chr18a	511;0	324;	25000 | 25000 | 25000 | 25000	3.0-6 | 5.2-6 | 1.0-5 | 4.1-5	**-2.2-4** | **-2.3-4** | **-5.0-4** | **-1.1-2**	17:44 | 25:29 | 20:10 | 30:47

Table 2: The performance of ADMM3c, SDPAD, ADMM3g, 2EBD on θ_+, FAP, QAP, BIQ and RCP problems (accuracy = 10^{-6}). In the table, "3c" and "3g" stand for ADMM3c and ADMM3g, respectively. The computation time is in the format of "hours:minutes:seconds".

			iteration	$\eta\|\eta\|\eta\|\hat{\eta}$	η_g	time
problem	$m_E; m_I$	n_s;	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD
chr18b	511;0	324;	1124 | 1176 | 1701 | 8709	9.9-7 | 9.9-7 | 9.7-7 | 9.9-7	-4.5-6 | -3.0-6 | -2.2-6 | -6.1-6	52 | 1:04 | 1:25 | 11:15
chr20a	628;0	400;	25000 | 25000 | 25000 | 25000	2.0-6 | 2.2-6 | 3.5-6 | 3.1-5	**-2.4-4** | -8.9-5 | **-1.0-4** | **-4.3-3**	29:49 | 43:13 | 34:51 | 49:22
chr20b	628;0	400;	8256 | 25000 | 17893 | 25000	9.6-7 | 2.9-5 | 9.8-7 | 2.4-5	**5.2-4** | **-5.4-3** | **3.6-4** | **-4.0-3**	10:39 | 45:06 | 23:16 | 51:14
chr20c	628;0	400;	14673 | 25000 | 25000 | 25000	9.1-7 | 1.4-6 | 1.3-6 | 3.4-5	5.2-6 | **-2.7-4** | **-2.3-4** | **-1.1-2**	13:45 | 26:08 | 25:54 | 48:58
chr22a	757;0	484;	6457 | 22364 | 13547 | 25000	8.8-7 | 9.9-7 | 9.8-7 | 2.5-5	**3.9-4** | **-2.7-4** | **2.5-4** | **-2.6-3**	12:29 | 50:45 | 27:27 | 1:17:44
chr22b	757;0	484;	7211 | 25000 | 14587 | 25000	9.7-7 | 1.5-5 | 9.8-7 | 2.1-5	**3.4-4** | **-1.4-3** | **2.4-4** | **-1.8-3**	13:52 | 1:07:51 | 30:26 | 1:15:34
chr25a	973;0	625;	7127 | 25000 | 16196 | 25000	8.6-7 | 3.7-5 | 9.8-7 | 3.4-5	**7.8-4** | **-9.5-3** | **5.6-4** | **-6.8-3**	26:03 | 2:10:29 | 1:03:08 | 2:23:01
els19	568;0	361;	3809 | 21549 | 6917 | 25000	9.9-7 | 9.7-7 | 8.4-7 | 2.1-5	**1.9-4** | **1.5-4** | -4.8-5 | **-2.5-3**	3:28 | 22:01 | 6:33 | 37:50
esc16a	406;0	256;	25000 | 25000 | 25000 | 25000	5.2-6 | 4.5-6 | 3.8-5 | 1.2-5	**-1.8-4** | **-1.8-4** | **-3.2-4** | **-2.9-4**	12:04 | 9:37 | 11:50 | 19:50
esc16b	406;0	256;	22427 | 25000 | 25000 | 25000	9.9-7 | 6.8-6 | **2.0-4** | 4.5-6	**-1.1-4** | **-3.6-4** | **-7.4-4** | **-2.9-4**	8:51 | 8:36 | 11:31 | 16:39
esc16c	406;0	256;	25000 | 25000 | 25000 | 25000	9.3-6 | 9.0-6 | **1.3-4** | 2.3-5	**-7.8-4** | **-8.7-4** | **-1.7-3** | **-1.4-3**	10:58 | 10:52 | 10:17 | 17:47
esc16d	406;0	256;	298 | 439 | 787 | 557	9.6-7 | 9.7-7 | 9.9-7 | 9.9-7	-5.6-6 | -2.8-6 | -5.6-6 | -8.9-7	08 | 10 | 18 | 25
esc16e	406;0	256;	342 | 488 | 913 | 1557	9.9-7 | 9.8-7 | 9.9-7 | 9.9-7	-6.3-6 | -3.4-6 | -2.2-5 | 2.4-8	08 | 11 | 20 | 1:09
esc16g	406;0	256;	447 | 498 | 929 | 1778	9.8-7 | 9.9-7 | 9.9-7 | 9.9-7	1.8-7 | 5.4-7 | 2.5-7 | -8.3-7	11 | 11 | 20 | 1:22
esc16h	406;0	256;	25000 | 25000 | 25000 | 25000	1.3-6 | 1.6-6 | 2.0-5 | 2.8-6	-2.7-5 | -3.1-5 | **-1.4-4** | -4.2-5	9:53 | 8:24 | 10:43 | 15:33
esc16i	406;0	256;	1330 | 1330 | 2736 | 5296	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-5.8-6 | -3.9-6 | -3.9-6 | -5.8-6	30 | 31 | 1:16 | 4:06
esc16j	406;0	256;	451 | 566 | 1550 | 1084	9.6-7 | 9.9-7 | 9.9-7 | 9.9-7	-3.4-5 | -4.7-5 | -4.7-5 | -1.4-7	12 | 12 | 33 | 48
esc32a	1582;0	1024;	4931 | 2247 | 5188 | 9630	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-2.0-6 | -1.1-6 | -3.9-5 | -2.7-6	1:06:25 | 27:49 | 1:00:38 | 2:44:37
esc32b	1582;0	1024;	25000 | 25000 | 25000 | 25000	3.7-6 | 2.4-6 | 2.6-5 | 8.3-6	**-2.4-4** | **-2.2-4** | **-6.5-4** | **-4.0-4**	5:18:19 | 4:31:51 | 6:12:17 | 7:59:47
esc32c	1582;0	1024;	25000 | 25000 | 25000 | 25000	5.3-6 | 5.1-6 | 8.2-6 | 1.6-5	-5.4-5 | -5.2-5 | -6.9-5 | -9.8-5	4:58:47 | 4:00:23 | 6:01:30 | 8:01:19
esc32d	1582;0	1024;	678 | 799 | 1679 | 1412	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-9.4-6 | -1.7-5 | -6.8-7 | -2.2-7	9:39 | 8:01 | 21:45 | 25:40
esc32e	1582;0	1024;	1108 | 905 | 6873 | 784	9.8-7 | 8.6-7 | 9.9-7 | 9.7-7	-3.8-7 | -9.2-6 | **-3.7-4** | -3.1-6	16:09 | 8:32 | 1:23:01 | 14:30
esc32f	1582;0	1024;	1108 | 905 | 6873 | 784	9.8-7 | 8.6-7 | 9.9-7 | 9.7-7	-3.8-7 | -9.2-6 | **-3.7-4** | -3.1-6	15:45 | 8:25 | 1:19:37 | 12:57
esc32g	1582;0	1024;	520 | 588 | 2328 | 981	9.3-7 | 9.2-7 | 9.9-7 | 9.9-7	1.9-6 | -3.3-6 | **-1.2-4** | 3.6-7	7:14 | 5:41 | 33:24 | 17:19
esc32h	1582;0	1024;	25000 | 25000 | 25000 | 25000	9.4-6 | 1.2-5 | 6.1-5 | 2.8-5	**-4.1-4** | **-5.0-4** | **-7.4-4** | **-7.4-4**	5:01:41 | 4:13:31 | 5:57:23 | 7:30:56
had12	232;0	144;	25000 | 25000 | 25000 | 25000	1.2-6 | 1.7-6 | 5.4-6 | 2.4-5	-1.1-5 | -1.4-5 | -1.2-5 | **-2.7-4**	3:59 | 5:01 | 3:46 | 6:50
had14	313;0	196;	25000 | 25000 | 25000 | 25000	4.0-6 | 4.1-6 | 1.1-5 | 3.7-5	-4.5-5 | -3.9-5 | -8.6-5 | **-4.7-4**	6:57 | 9:09 | 6:49 | 11:06
had16	406;0	256;	19949 | 25000 | 25000 | 25000	4.8-7 | 8.9-6 | 1.1-5 | 3.0-5	1.5-5 | -5.5-5 | -7.1-5 | **-2.6-4**	9:15 | 16:07 | 12:09 | 18:45
had18	511;0	324;	25000 | 25000 | 25000 | 25000	1.4-5 | 3.1-5 | 5.0-5 | 2.4-5	**-2.0-4** | **-3.1-4** | **-3.6-4** | **-3.1-4**	19:32 | 22:29 | 20:17 | 29:56
had20	628;0	400;	25000 | 25000 | 25000 | 25000	1.4-5 | 3.1-5 | 5.2-5 | 2.8-5	**-1.9-4** | **-3.2-4** | **-3.5-4** | **-4.4-4**	30:47 | 41:00 | 34:23 | 50:54
kra30a	1393;0	900;	25000 | 25000 | 25000 | 25000	1.3-5 | 1.4-5 | 7.5-5 | 1.7-6	**-4.2-4** | **-5.7-4** | **-7.7-4** | -5.9-5	3:45:29 | 5:11:22 | 4:22:39 | 5:42:45
kra30b	1393;0	900;	25000 | 25000 | 25000 | 25000	1.1-5 | 1.1-5 | 6.8-5 | 1.8-5	**-3.7-4** | **-4.9-4** | **-9.4-4** | **-6.1-4**	3:56:14 | 5:15:18 | 4:18:02 | 5:45:45
kra32	1582;0	1024;	25000 | 25000 | 25000 | 25000	9.1-6 | 1.1-5 | 5.4-5 | 1.7-5	**-3.2-4** | **-4.0-4** | **-7.0-4** | **-5.0-4**	5:07:43 | 6:57:49 | 5:44:04 | 8:11:14
lipa20a	628;0	400;	1653 | 5698 | 4766 | 25000	8.8-7 | 9.8-7 | 9.5-7 | 4.8-5	-4.4-6 | -2.0-5 | 2.2-5 | **-1.6-3**	1:43 | 6:54 | 4:58 | 51:25
lipa20b	628;0	400;	1514 | 4747 | 4444 | 25000	8.5-7 | 9.7-7 | 9.8-7 | **4.4-4**	9.1-6 | -3.1-5 | -3.2-5 | **-2.0-2**	1:19 | 3:51 | 3:59 | 48:31
lipa30a	1393;0	900;	3533 | 11683 | 25000 | 16167	8.9-7 | 9.5-7 | 7.2-6 | 9.9-7	8.3-6 | 3.2-5 | **-2.4-4** | -3.8-6	26:59 | 1:52:11 | 2:55:04 | 3:46:31
lipa30b	1393;0	900;	2700 | 7516 | 25000 | 25000	9.1-7 | 9.9-7 | **1.4-4** | **1.6-4**	4.3-5 | 4.7-5 | **-6.6-3** | **1.1-2**	16:33 | 52:22 | 2:48:26 | 5:31:56
lipa40a	2458;0	1600;	6483 | 18785 | 25000 | 25000	8.8-7 | 9.8-7 | 2.3-5 | 9.5-6	4.2-5 | -4.1-5 | **-1.0-3** | **-1.5-4**	3:32:47 | 19:15:19 | 14:17:50 | 26:56:27
lipa40b	2458;0	1600;	4878 | 5970 | 25000 | 25000	9.0-7 | 9.8-7 | **3.6-4** | **4.6-4**	**1.1-4** | -6.4-5 | **-2.3-2** | **-4.1-2**	2:20:09 | 4:11:06 | 12:45:41 | 23:33:11
nug12	232;0	144;	25000 | 25000 | 25000 | 25000	6.3-6 | 6.1-6 | 4.1-5 | 1.2-5	**-1.5-4** | **-1.8-4** | **-4.6-4** | **-2.5-4**	3:33 | 4:46 | 4:04 | 7:03

Table 2: The performance of ADMM3c, SDPAD, ADMM3g, 2EBD on θ_+, FAP, QAP, BIQ and RCP problems (accuracy = 10^{-6}). In the table, "3c" and "3g" stand for ADMM3c and ADMM3g, respectively. The computation time is in the format of "hours:minutes:seconds".

			iteration	$\eta\|\eta\|\eta\|\hat{\eta}$	η_g	time
problem	$m_E; m_I$	n_s;	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD
nug14	313;0	196;	25000 | 25000 | 25000 | 25000	1.3-5 | 1.8-5 | 4.2-5 | 2.6-5	**-2.3-4** | **-3.2-4** | **-4.8-4** | **-3.6-4**	6:57 | 8:09 | 7:07 | 11:12
nug15	358;0	225;	25000 | 25000 | 25000 | 25000	9.9-6 | 1.2-5 | 4.9-5 | 1.8-5	**-2.1-4** | **-2.7-4** | **-5.2-4** | **-3.2-4**	8:53 | 11:00 | 9:29 | 15:06
nug16a	406;0	256;	25000 | 25000 | 25000 | 25000	2.7-5 | 2.4-5 | 4.8-5 | 3.3-5	**-3.6-4** | **-4.1-4** | **-5.8-4** | **-4.3-4**	12:01 | 14:36 | 12:37 | 19:00
nug16b	406;0	256;	25000 | 25000 | 25000 | 25000	8.7-6 | 9.0-6 | 4.5-5 | 1.1-5	**-2.1-4** | **-2.6-4** | **-5.4-4** | **-2.8-4**	11:12 | 13:23 | 11:21 | 18:50
nug17	457;0	289;	25000 | 25000 | 25000 | 25000	1.1-5 | 1.4-5 | 4.2-5 | 2.1-5	**-2.2-4** | **-2.9-4** | **-4.9-4** | **-3.5-4**	15:00 | 19:07 | 16:26 | 24:12
nug18	511;0	324;	25000 | 25000 | 25000 | 25000	9.2-6 | 1.1-5 | 4.3-5 | 1.8-5	**-1.9-4** | **-2.4-4** | **-4.6-4** | **-3.0-4**	18:47 | 25:10 | 20:56 | 30:51
nug20	628;0	400;	25000 | 25000 | 25000 | 25000	8.7-6 | 9.6-6 | 3.9-5 | 1.4-5	**-1.7-4** | **-2.1-4** | **-4.0-4** | **-2.5-4**	30:28 | 40:29 | 35:55 | 48:41
nug21	691;0	441;	25000 | 25000 | 25000 | 25000	1.0-5 | 1.3-5 | 4.0-5 | 1.9-5	**-2.2-4** | **-2.8-4** | **-4.7-4** | **-3.3-4**	38:17 | 51:44 | 44:31 | 1:04:08
nug22	757;0	484;	25000 | 25000 | 25000 | 25000	1.3-5 | 1.6-5 | 4.1-5 | 2.0-5	**-2.7-4** | **-3.6-4** | **-5.8-4** | **-3.9-4**	49:55 | 1:02:41 | 56:47 | 1:14:17
nug24	898;0	576;	25000 | 25000 | 25000 | 25000	9.1-6 | 1.1-5 | 3.8-5 | 1.6-5	**-1.9-4** | **-2.3-4** | **-4.1-4** | **-2.7-4**	1:17:49 | 1:40:05 | 1:23:47 | 1:57:03
nug25	973;0	625;	25000 | 25000 | 25000 | 25000	1.2-5 | 1.0-5 | 3.6-5 | 1.7-5	**-2.0-4** | **-2.0-4** | **-3.5-4** | **-2.5-4**	1:35:46 | 1:53:26 | 1:45:18 | 2:16:27
nug27	1132;0	729;	25000 | 25000 | 25000 | 25000	1.0-5 | 1.3-5 | 3.8-5 | 1.7-5	**-2.0-4** | **-2.6-4** | **-4.3-4** | **-2.8-4**	2:21:06 | 2:51:26 | 2:36:56 | 3:28:20
nug28	1216;0	784;	25000 | 25000 | 25000 | 25000	9.3-6 | 1.2-5 | 3.4-5 | 1.7-5	**-1.8-4** | **-2.2-4** | **-3.8-4** | **-2.6-4**	2:47:04 | 3:27:54 | 3:02:26 | 4:02:11
nug30	1393;0	900;	25000 | 25000 | 25000 | 25000	8.7-6 | 1.1-5 | 3.3-5 | 1.7-5	**-1.6-4** | **-1.9-4** | **-3.3-4** | **-2.2-4**	3:48:43 | 4:58:12 | 4:23:21 | 5:39:31
rou12	232;0	144;	25000 | 25000 | 25000 | 25000	2.9-5 | 3.4-5 | 5.7-5 | 3.9-5	**-5.0-4** | **-5.8-4** | **-8.0-4** | **-5.8-4**	4:11 | 4:46 | 3:59 | 6:29
rou15	358;0	225;	25000 | 25000 | 25000 | 25000	8.6-6 | 9.9-6 | 4.8-5 | 1.6-5	**-1.6-4** | **-2.2-4** | **-4.1-4** | **-2.7-4**	9:50 | 12:31 | 9:47 | 15:14
rou20	628;0	400;	25000 | 25000 | 25000 | 25000	6.1-6 | 6.3-6 | 4.8-5 | 1.5-5	**-1.1-4** | **-1.3-4** | **-3.3-4** | **-1.9-4**	30:03 | 46:12 | 37:21 | 52:43
scr12	232;0	144;	1358 | 2019 | 2360 | 5396	8.1-7 | 9.1-7 | 6.6-7 | 9.8-7	2.4-5 | 1.8-5 | 1.0-5 | 1.5-5	11 | 21 | 21 | 1:27
scr15	358;0	225;	2237 | 3429 | 3430 | 8053	8.4-7 | 8.7-7 | 9.3-7 | 9.8-7	8.8-5 | -5.4-5 | 5.8-5 | -1.8-5	41 | 1:17 | 1:08 | 4:35
scr20	628;0	400;	25000 | 25000 | 25000 | 25000	8.3-6 | 1.1-5 | 3.1-5 | 1.7-5	**-3.8-4** | **-4.7-4** | **-7.9-4** | **-5.5-4**	29:35 | 41:44 | 36:14 | 50:32
ste36a	1996;0	1296;	25000 | 25000 | 25000 | 25000	9.7-6 | 1.3-5 | 3.7-5 | 1.6-5	**-5.8-4** | **-6.8-4** | **-9.5-4** | **-6.7-4**	9:38:26 | 12:37:18 | 11:11:59 | 14:09:11
ste36b	1996;0	1296;	25000 | 25000 | 25000 | 25000	1.2-5 | 1.8-5 | 4.4-5 | 1.3-5	**-1.5-3** | **-2.0-3** | **-2.3-3** | **-2.1-3**	9:19:24 | 12:10:09 | 10:45:58 | 14:23:33
ste36c	1996;0	1296;	25000 | 25000 | 25000 | 25000	1.2-5 | 1.5-5 | 4.3-5 | 1.6-5	**-5.8-4** | **-7.3-4** | **-9.4-4** | **-7.2-4**	9:26:42 | 12:22:19 | 11:01:56 | 14:23:52
tai12a	232;0	144;	1377 | 2763 | 3029 | 6599	8.0-7 | 9.9-7 | 9.7-7 | 9.9-7	1.0-5 | -2.4-5 | 2.3-5 | -1.2-5	11 | 23 | 25 | 1:45
tai12b	232;0	144;	6403 | 14442 | 12067 | 25000	8.5-7 | 4.5-7 | 9.1-7 | 1.8-5	**1.2-4** | 3.7-5 | 1.5-5 | **-5.8-4**	50 | 1:36 | 1:30 | 6:24
tai15a	358;0	225;	25000 | 25000 | 25000 | 25000	7.0-6 | 6.9-6 | 5.1-5 | 1.3-5	**-1.2-4** | **-1.5-4** | **-3.2-4** | **-2.1-4**	9:25 | 12:52 | 9:38 | 15:15
tai15b	358;0	225;	6964 | 7170 | 9781 | 25000	9.9-7 | 9.9-7 | 9.9-7 | 4.1-6	**-1.7-4** | **-1.7-4** | **-1.7-4** | **-4.3-4**	2:35 | 3:22 | 3:33 | 14:37
tai17a	457;0	289;	25000 | 25000 | 25000 | 25000	6.1-6 | 6.1-6 | 4.8-5 | 1.4-5	**-1.1-4** | **-1.3-4** | **-3.4-4** | **-2.0-4**	15:39 | 22:31 | 16:56 | 25:29
tai20a	628;0	400;	25000 | 25000 | 25000 | 25000	5.6-6 | 5.8-6 | 4.1-5 | 1.5-5	-9.9-5 | **-1.2-4** | **-2.9-4** | **-1.9-4**	31:14 | 47:13 | 36:53 | 50:21
tai20b	628;0	400;	14238 | 23726 | 25000 | 25000	3.6-7 | 7.3-7 | 1.4-6 | 1.7-5	**1.4-4** | 9.9-5 | **-1.2-4** | **-1.5-3**	14:29 | 28:00 | 30:22 | 50:45
tai25a	973;0	625;	2201 | 1845 | 2477 | 25000	9.5-7 | 9.9-7 | 9.9-7 | 1.7-6	**-8.0-4** | **-7.2-4** | **-8.5-4** | **-1.8-3**	8:38 | 9:24 | 11:18 | 2:27:04
tai25b	973;0	625;	25000 | 25000 | 25000 | 25000	2.9-5 | 3.7-5 | 6.3-5 | 4.2-5	**-2.0-3** | **-2.4-3** | **-3.2-3** | **-2.5-3**	1:28:33 | 1:55:04 | 1:43:51 | 2:21:35
tai30a	1393;0	900;	25000 | 25000 | 25000 | 25000	4.7-6 | 4.6-6 | 3.2-5 | 1.3-5	-6.3-5 | -7.3-5 | **-1.8-4** | **-1.3-4**	3:53:48 | 6:09:25 | 4:31:53 | 6:00:13
tai30b	1393;0	900;	25000 | 25000 | 25000 | 25000	2.0-5 | 2.4-5 | 4.4-5 | 2.6-5	**-1.0-3** | **-1.2-3** | **-1.7-3** | **-1.2-3**	3:42:12 | 4:28:02 | 4:17:53 | 5:38:24
tai35a	1888;0	1225;	25000 | 25000 | 25000 | 25000	3.9-6 | 4.0-6 | 2.8-5 | 1.3-5	-4.8-5 | -5.6-5 | **-1.4-4** | **-1.0-4**	9:21:21 | 15:00:46 | 10:43:14 | 12:53:01
tai35b	1888;0	1225;	25000 | 25000 | 25000 | 25000	2.1-5 | 2.4-5 | 4.4-5 | 2.8-5	**-9.1-4** | **-1.0-3** | **-1.5-3** | **-1.1-3**	8:51:20 | 11:15:52 | 10:28:44 | 12:51:27
tai40a	2458;0	1600;	25000 | 25000 | 25000 | 25000	3.7-6 | 4.0-6 | 2.7-5 | 1.4-5	-4.6-5 | -5.3-5 | **-1.4-4** | **-1.0-4**	20:22:53 | 31:45:29 | 23:23:44 | 26:00:47
tai40b	2458;0	1600;	25000 | 25000 | 25000 | 25000	1.9-5 | 2.5-5 | 4.6-5 | 3.1-5	**-7.2-4** | **-8.1-4** | **-1.1-3** | **-8.5-4**	17:50:19 | 23:17:25 | 19:57:37 | 25:23:31
tho30	1393;0	900;	25000 | 25000 | 25000 | 25000	1.1-5 | 1.5-5 | 4.0-5 | 2.2-5	**-2.6-4** | **-3.4-4** | **-5.6-4** | **-4.0-4**	3:46:49 | 4:46:03 | 4:23:12 | 5:44:33
tho40	2458;0	1600;	25000 | 25000 | 25000 | 25000	9.3-6 | 1.3-5 | 3.7-5 | 2.0-5	**-2.1-4** | **-2.7-4** | **-4.5-4** | **-3.2-4**	17:12:50 | 24:35:42 | 19:56:25 | 26:05:11

Table 2: The performance of ADMM3c, SDPAD, ADMM3g, 2EBD on θ_+, FAP, QAP, BIQ and RCP problems (accuracy = 10^{-6}). In the table, "3c" and "3g" stand for ADMM3c and ADMM3g, respectively. The computation time is in the format of "hours:minutes:seconds".

			iteration	$\eta\|\eta\|\eta\|\hat{\eta}$	η_g	time
problem	$m_E; m_I$	n_s;	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD
be100.1	101;0	101;	1705 | 2031 | 4226 | 1627	9.9-7 | 9.9-7 | 9.8-7 | 9.9-7	2.0-6 | 4.0-7 | 1.1-7 | 1.6-7	07 | 07 | 17 | 08
be100.2	101;0	101;	1666 | 1746 | 3647 | 1383	9.6-7 | 9.9-7 | 9.9-7 | 9.9-7	9.3-7 | -2.8-7 | 3.2-7 | 4.1-7	07 | 06 | 15 | 07
be100.3	101;0	101;	2064 | 2120 | 4446 | 1679	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-9.6-7 | -3.5-7 | 1.4-6 | -1.1-6	08 | 08 | 19 | 08
be100.4	101;0	101;	1946 | 2709 | 3966 | 1789	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-7.4-7 | -4.6-7 | -1.6-6 | -1.6-7	07 | 09 | 17 | 08
be100.5	101;0	101;	1550 | 1889 | 4256 | 1336	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-4.6-7 | -8.7-7 | -4.9-7 | 1.0-7	06 | 07 | 18 | 07
be100.6	101;0	101;	2150 | 2260 | 4025 | 1415	9.9-7 | 9.9-7 | 9.8-7 | 9.9-7	-6.2-7 | -6.2-7 | 3.5-7 | -4.6-8	09 | 08 | 17 | 07
be100.7	101;0	101;	1818 | 1901 | 4183 | 1481	9.9-7 | 9.9-7 | 9.9-7 | 9.6-7	-1.2-6 | -3.4-7 | 8.1-7 | 1.8-7	07 | 07 | 18 | 07
be100.8	101;0	101;	1623 | 1590 | 4047 | 1433	9.9-7 | 9.9-7 | 9.6-7 | 9.9-7	8.7-7 | 6.2-7 | 1.2-7 | -2.7-6	06 | 05 | 17 | 07
be100.9	101;0	101;	1254 | 1862 | 3491 | 1261	9.9-7 | 9.9-7 | 9.9-7 | 9.1-7	-1.7-7 | -5.4-7 | 9.3-7 | -1.2-6	05 | 07 | 15 | 06
be100.10	101;0	101;	1358 | 1485 | 4041 | 1282	9.9-7 | 9.9-7 | 9.7-7 | 9.8-7	-4.2-7 | -5.1-7 | 6.6-7 | -4.7-7	05 | 05 | 17 | 06
be120.3.1	121;0	121;	1955 | 2435 | 4183 | 1437	9.9-7 | 9.9-7 | 9.9-7 | 9.8-7	-4.9-7 | -7.8-7 | 1.3-6 | 1.0-6	10 | 11 | 22 | 09
be120.3.2	121;0	121;	2054 | 2407 | 4401 | 1640	9.9-7 | 9.9-7 | 9.8-7 | 9.9-7	-7.7-7 | -1.1-6 | 5.7-8 | -5.7-7	10 | 11 | 24 | 10
be120.3.3	121;0	121;	1976 | 2236 | 4157 | 1497	9.9-7 | 9.9-7 | 9.8-7 | 9.9-7	-5.0-7 | -9.2-7 | 3.2-7 | -5.5-7	10 | 10 | 23 | 10
be120.3.4	121;0	121;	2116 | 2445 | 4736 | 1611	9.9-7 | 9.9-7 | 9.8-7 | 9.9-7	-1.4-7 | -2.0-6 | -1.2-6 | -5.7-7	10 | 11 | 25 | 10
be120.3.5	121;0	121;	2589 | 2856 | 8902 | 2686	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	1.6-7 | 1.1-7 | 4.2-9 | 1.2-8	13 | 13 | 49 | 17
be120.3.6	121;0	121;	2226 | 2819 | 4901 | 1827	9.9-7 | 9.9-7 | 9.2-7 | 9.9-7	-7.6-7 | -3.8-7 | -6.5-7 | 3.2-7	11 | 13 | 28 | 11
be120.3.7	121;0	121;	4269 | 4626 | 10806 | 3087	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-2.5-7 | -1.6-7 | -3.3-8 | -2.5-7	20 | 22 | 1:00 | 19
be120.3.8	121;0	121;	3281 | 4065 | 6201 | 2628	9.9-7 | 9.9-7 | 9.5-7 | 9.9-7	3.9-7 | -2.4-7 | -1.4-7 | 9.5-8	14 | 18 | 33 | 16
be120.3.9	121;0	121;	3510 | 6116 | 12501 | 2770	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-3.6-7 | -4.8-7 | -1.5-8 | -2.5-8	16 | 28 | 1:10 | 18
be120.3.10	121;0	121;	1586 | 2056 | 3840 | 1322	9.9-7 | 9.9-7 | 9.8-7 | 9.7-7	-3.4-6 | -1.5-6 | -8.5-7 | 1.9-7	08 | 09 | 21 | 08
be120.8.1	121;0	121;	1835 | 2008 | 3744 | 1241	9.9-7 | 9.9-7 | 9.9-7 | 9.8-7	-1.1-6 | -8.1-7 | -2.3-6 | -1.2-6	08 | 09 | 19 | 08
be120.8.2	121;0	121;	3638 | 3422 | 7190 | 2501	9.9-7 | 9.9-7 | 9.9-7 | 9.4-7	-1.1-7 | -1.0-6 | 1.4-9 | -3.9-8	17 | 16 | 40 | 16
be120.8.3	121;0	121;	1888 | 2232 | 4048 | 1635	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-4.4-7 | -4.0-7 | -2.3-8 | 1.5-8	09 | 11 | 22 | 11
be120.8.4	121;0	121;	1985 | 2273 | 4516 | 1603	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.4-7 | -3.6-7 | -7.8-7 | -1.5-6	09 | 11 | 25 | 10
be120.8.5	121;0	121;	2101 | 2669 | 4901 | 1747	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-5.0-7 | -9.2-8 | -8.1-7 | -2.0-8	11 | 13 | 27 | 11
be120.8.6	121;0	121;	1853 | 2238 | 4382 | 1389	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-5.7-7 | -1.2-6 | -1.6-8 | 1.8-7	09 | 10 | 24 | 09
be120.8.7	121;0	121;	1837 | 1934 | 4316 | 1683	9.9-7 | 9.9-7 | 9.7-7 | 9.9-7	4.7-7 | -6.5-9 | 5.0-8 | 8.2-7	09 | 09 | 22 | 11
be120.8.8	121;0	121;	1552 | 1893 | 4155 | 1314	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.1-6 | -4.0-7 | 5.8-7 | -2.2-6	08 | 09 | 23 | 08
be120.8.9	121;0	121;	1672 | 1935 | 3988 | 1286	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-5.9-7 | -2.1-7 | -1.0-6 | 2.0-6	09 | 09 | 21 | 08
be120.8.10	121;0	121;	1921 | 2460 | 4526 | 1561	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-2.2-7 | -5.0-7 | 4.4-8 | -3.1-8	10 | 12 | 25 | 10
be150.3.1	151;0	151;	2318 | 2559 | 4645 | 1865	9.9-7 | 9.9-7 | 9.8-7 | 9.9-7	-1.4-6 | -3.3-7 | -1.3-6 | -1.0-6	17 | 18 | 36 | 18
be150.3.2	151;0	151;	2885 | 3145 | 4624 | 1959	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-6.1-7 | -5.4-7 | -2.8-6 | -3.5-7	20 | 21 | 36 | 19
be150.3.3	151;0	151;	2110 | 2509 | 5272 | 1731	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	2.2-6 | -1.3-6 | 4.2-7 | -2.0-6	16 | 17 | 40 | 17
be150.3.4	151;0	151;	2612 | 2982 | 6122 | 1977	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	3.2-6 | -1.2-7 | -3.4-6 | -8.6-7	19 | 20 | 47 | 19
be150.3.5	151;0	151;	2186 | 2700 | 4437 | 1770	9.9-7 | 9.9-7 | 9.8-7 | 9.9-7	-7.7-7 | -3.5-7 | 3.2-7 | -4.3-7	16 | 19 | 34 | 17
be150.3.6	151;0	151;	2053 | 2501 | 4476 | 1791	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.1-7 | -2.9-7 | -8.3-7 | -5.0-7	15 | 16 | 34 | 17
be150.3.7	151;0	151;	2597 | 2920 | 4257 | 1713	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-4.8-7 | -5.4-7 | 1.8-6 | -1.4-7	18 | 19 | 32 | 16
be150.3.8	151;0	151;	3097 | 3358 | 5382 | 2080	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-5.4-7 | -3.1-7 | 5.7-7 | -4.3-7	22 | 22 | 41 | 20
be150.3.9	151;0	151;	1593 | 2067 | 3833 | 1171	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.2-6 | -9.9-7 | 9.5-7 | 1.9-6	11 | 14 | 29 | 12
be150.3.10	151;0	151;	3526 | 4499 | 7701 | 2545	9.9-7 | 9.9-7 | 9.8-7 | 9.9-7	-3.3-7 | -3.0-7 | -7.0-8 | -1.3-7	25 | 30 | 59 | 25

Table 2: The performance of ADMM3c, SDPAD, ADMM3g, 2EBD on θ_+, FAP, QAP, BIQ and RCP problems (accuracy = 10^{-6}). In the table, "3c" and "3g" stand for ADMM3c and ADMM3g, respectively. The computation time is in the format of "hours:minutes:seconds".

			iteration	$\eta\|\eta\|\eta\|\hat{\eta}$	η_g	time
problem	$m_E; m_I$	n_s;	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD
be150.8.1	151;0	151;	2069 | 2254 | 4862 | 1551	9.9-7 | 9.9-7 | 9.8-7 | 9.9-7	-2.8-7 | 1.4-7 | 1.5-7 | -1.0-6	15 | 15 | 36 | 15
be150.8.2	151;0	151;	1940 | 2387 | 4114 | 1431	9.6-7 | 9.9-7 | 9.8-7 | 9.9-7	-4.4-7 | -6.6-7 | -3.3-7 | -1.6-6	14 | 15 | 31 | 14
be150.8.3	151;0	151;	2448 | 2580 | 4562 | 1685	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-6.3-7 | 8.3-7 | -3.1-6 | 6.3-7	18 | 18 | 36 | 17
be150.8.4	151;0	151;	2188 | 2680 | 4872 | 1547	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-7.0-7 | -6.1-7 | -1.3-8 | -8.6-7	16 | 18 | 38 | 15
be150.8.5	151;0	151;	2648 | 3016 | 4805 | 1775	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-8.8-7 | -7.6-7 | 3.6-6 | -3.2-7	20 | 21 | 38 | 17
be150.8.6	151;0	151;	1989 | 2580 | 4499 | 1644	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.9-6 | -4.0-7 | -1.0-7 | -5.5-7	14 | 16 | 33 | 16
be150.8.7	151;0	151;	2715 | 3379 | 5502 | 2406	9.9-7 | 9.9-7 | 9.4-7 | 9.9-7	-3.8-7 | -4.2-7 | -2.7-6 | 1.7-7	19 | 22 | 42 | 23
be150.8.8	151;0	151;	3509 | 3388 | 10349 | 2535	9.6-7 | 9.9-7 | 9.9-7 | 9.9-7	-8.5-7 | -9.1-7 | -1.4-8 | -4.3-7	25 | 23 | 1:23 | 24
be150.8.9	151;0	151;	2587 | 3319 | 6466 | 1777	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-2.9-7 | -7.3-7 | -3.8-8 | -7.4-7	19 | 23 | 52 | 17
be150.8.10	151;0	151;	2371 | 2833 | 4808 | 1854	9.9-7 | 9.9-7 | 9.8-7 | 9.9-7	-6.1-7 | -2.8-7 | 7.1-7 | -3.1-7	17 | 19 | 37 | 18
be200.3.1	201;0	201;	2543 | 2841 | 5339 | 1754	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-7.6-7 | -1.2-6 | -1.9-6 | -8.7-7	30 | 32 | 1:07 | 30
be200.3.2	201;0	201;	2629 | 3278 | 5481 | 1897	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-3.9-7 | -5.7-7 | -7.0-7 | -6.1-7	32 | 37 | 1:11 | 32
be200.3.3	201;0	201;	4645 | 5206 | 8364 | 3067	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-6.8-7 | -4.4-7 | -3.3-7 | -6.0-7	55 | 1:01 | 1:50 | 52
be200.3.4	201;0	201;	3035 | 3513 | 6143 | 2142	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.1-6 | -9.2-7 | -3.2-6 | 2.9-8	37 | 40 | 1:19 | 36
be200.3.5	201;0	201;	3598 | 4665 | 6702 | 2720	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-8.1-7 | -3.0-7 | -4.2-7 | -3.3-7	42 | 55 | 1:27 | 46
be200.3.6	201;0	201;	2746 | 3012 | 5966 | 1783	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.7-7 | -9.3-8 | 5.4-6 | 5.5-7	33 | 33 | 1:16 | 30
be200.3.7	201;0	201;	3568 | 3780 | 6979 | 2272	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	3.5-8 | -5.1-7 | 4.3-7 | 4.4-7	43 | 43 | 1:30 | 39
be200.3.8	201;0	201;	2966 | 3445 | 5624 | 2079	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.6-6 | -1.1-6 | 3.2-6 | -1.3-6	35 | 38 | 1:12 | 35
be200.3.9	201;0	201;	4670 | 5441 | 8301 | 3619	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.2-6 | -7.0-7 | -8.8-7 | -7.8-7	55 | 1:01 | 1:47 | 1:02
be200.3.10	201;0	201;	2955 | 3504 | 5656 | 2498	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-8.8-7 | -4.7-7 | 6.7-7 | -7.2-8	35 | 39 | 1:13 | 41
be200.8.1	201;0	201;	3743 | 4153 | 6943 | 2689	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-8.3-7 | -4.6-7 | -3.5-6 | -2.8-7	45 | 49 | 1:31 | 47
be200.8.2	201;0	201;	2708 | 2918 | 5863 | 1695	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	3.9-7 | -4.7-7 | 1.6-6 | -6.4-7	32 | 32 | 1:12 | 29
be200.8.3	201;0	201;	3009 | 3465 | 5922 | 2437	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-4.6-7 | -6.9-7 | 1.9-6 | -5.2-7	37 | 41 | 1:17 | 42
be200.8.4	201;0	201;	2987 | 3187 | 7060 | 1939	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-9.7-7 | -9.0-7 | 3.1-6 | -1.2-6	37 | 37 | 1:32 | 33
be200.8.5	201;0	201;	2836 | 2951 | 6390 | 1868	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-3.0-7 | -1.5-7 | -4.3-6 | -7.6-9	36 | 35 | 1:23 | 32
be200.8.6	201;0	201;	3276 | 3712 | 6701 | 2786	9.9-7 | 9.9-7 | 8.6-7 | 9.9-7	-1.2-6 | -5.8-7 | 8.7-7 | -5.7-7	42 | 42 | 1:27 | 47
be200.8.7	201;0	201;	3052 | 3455 | 7421 | 1968	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.7-6 | -2.5-6 | -3.1-6 | -6.3-7	37 | 40 | 1:34 | 34
be200.8.8	201;0	201;	2936 | 3084 | 5848 | 1872	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-5.8-7 | -9.8-8 | 4.7-6 | -7.8-7	36 | 34 | 1:15 | 32
be200.8.9	201;0	201;	2670 | 3069 | 6649 | 1877	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	5.3-7 | -3.5-7 | 1.2-6 | -1.2-7	34 | 36 | 1:27 | 33
be200.8.10	201;0	201;	2779 | 3127 | 5527 | 1748	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-7.6-7 | -8.9-7 | 1.4-7 | -7.3-7	35 | 36 | 1:11 | 29
be250.1	251;0	251;	4327 | 5345 | 8441 | 3537	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-2.0-7 | -3.6-7 | -4.3-6 | -4.1-7	1:16 | 1:35 | 2:49 | 1:37
be250.2	251;0	251;	3827 | 5108 | 7900 | 3044	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-8.6-7 | -5.3-7 | -1.8-6 | -8.0-7	1:08 | 1:28 | 2:36 | 1:22
be250.3	251;0	251;	3796 | 4331 | 7816 | 2592	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.1-6 | -7.3-7 | 1.8-6 | -1.1-6	1:11 | 1:18 | 2:31 | 1:11
be250.4	251;0	251;	8023 | 8350 | 16334 | 6453	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.1-6 | -1.1-6 | -2.0-7 | -2.9-7	2:23 | 2:24 | 5:25 | 2:53
be250.5	251;0	251;	4460 | 5089 | 7757 | 3174	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-7.5-7 | -6.4-7 | -4.6-7 | -7.2-7	1:23 | 1:31 | 2:33 | 1:26
be250.6	251;0	251;	4095 | 4560 | 8149 | 2812	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-5.7-7 | -5.4-7 | -6.4-7 | -4.3-7	1:13 | 1:17 | 2:37 | 1:16
be250.7	251;0	251;	4345 | 5048 | 9076 | 3295	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.1-7 | -2.4-7 | 6.8-7 | -2.4-7	1:20 | 1:28 | 2:57 | 1:31
be250.8	251;0	251;	3759 | 4663 | 7959 | 2911	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	1.9-7 | -8.8-7 | -3.9-6 | 2.5-7	1:08 | 1:18 | 2:32 | 1:18
be250.9	251;0	251;	4624 | 5976 | 10301 | 4169	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.1-6 | -1.1-6 | -7.7-7 | -4.8-7	1:26 | 1:49 | 3:28 | 1:54
be250.10	251;0	251;	5963 | 6638 | 14801 | 3989	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-7.6-7 | -7.4-7 | 2.8-8 | -4.2-7	1:46 | 1:55 | 4:46 | 1:49

Table 2: The performance of ADMM3c, SDPAD, ADMM3g, 2EBD on θ_+, FAP, QAP, BIQ and RCP problems (accuracy $= 10^{-6}$). In the table, "3c" and "3g" stand for ADMM3c and ADMM3g, respectively. The computation time is in the format of "hours:minutes:seconds".

			iteration	$\eta\|\eta\|\eta\|\hat{\eta}$	η_g	time
problem	$m_E; m_I$	n_s;	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD
bqp100-1	101;0	101;	1541 | 1923 | 3964 | 1291	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-6.2-7 | -6.0-7 | 2.3-6 | 3.1-6	06 | 07 | 16 | 06
bqp100-2	101;0	101;	2786 | 3384 | 6320 | 2349	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-4.2-8 | -6.8-7 | -1.5-7 | -1.8-7	10 | 11 | 26 | 11
bqp100-3	101;0	101;	2345 | 5083 | 20901 | 3980	9.8-7 | 9.9-7 | 9.5-7 | 9.9-7	-1.1-7 | -2.8-7 | -2.6-8 | -3.8-7	09 | 16 | 1:25 | 18
bqp100-4	101;0	101;	2350 | 2729 | 5001 | 2995	9.9-7 | 9.8-7 | 9.7-7 | 9.9-7	-5.6-7 | -3.2-7 | 2.3-8 | -4.0-8	09 | 10 | 20 | 14
bqp100-5	101;0	101;	3579 | 3879 | 11001 | 3205	9.9-7 | 9.9-7 | 9.8-7 | 9.9-7	-5.1-7 | -4.2-7 | -4.3-8 | -2.2-8	14 | 13 | 46 | 15
bqp100-6	101;0	101;	1712 | 1918 | 4129 | 1376	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-7.6-7 | -3.2-7 | -2.3-7 | 3.5-7	07 | 06 | 17 | 06
bqp100-7	101;0	101;	1852 | 2272 | 4241 | 1637	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-2.2-6 | -9.0-7 | -4.1-7 | -6.0-7	07 | 08 | 17 | 08
bqp100-8	101;0	101;	3071 | 3957 | 12001 | 2931	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-3.4-7 | -3.6-7 | 3.2-9 | -2.2-8	12 | 13 | 52 | 14
bqp100-9	101;0	101;	2906 | 3255 | 8275 | 2265	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	6.8-8 | 8.7-8 | -2.5-6 | -2.4-6	11 | 11 | 34 | 11
bqp100-10	101;0	101;	3417 | 3703 | 8608 | 4123	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-8.9-7 | -6.6-7 | -1.8-8 | -6.0-8	13 | 12 | 35 | 19
bqp250-1	251;0	251;	4593 | 4946 | 8603 | 3216	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-8.8-7 | 1.0-6 | 2.6-6 | -8.1-7	1:19 | 1:26 | 2:50 | 1:28
bqp250-2	251;0	251;	4388 | 5097 | 8650 | 3293	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.1-6 | -7.4-7 | -1.1-6 | -6.2-7	1:26 | 1:30 | 2:54 | 1:31
bqp250-3	251;0	251;	4039 | 5332 | 10230 | 3203	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-2.1-6 | -3.1-7 | -1.5-6 | -7.5-7	1:08 | 1:29 | 3:12 | 1:28
bqp250-4	251;0	251;	3662 | 4539 | 7392 | 2548	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.4-6 | -6.7-7 | -3.4-6 | 1.5-7	1:05 | 1:20 | 2:26 | 1:09
bqp250-5	251;0	251;	4558 | 8062 | 16221 | 4487	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.1-6 | -4.8-7 | -3.8-7 | -5.6-7	1:23 | 2:23 | 5:22 | 2:03
bqp250-6	251;0	251;	4722 | 5380 | 8140 | 3480	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.2-6 | -1.2-6 | 1.2-6 | -2.6-7	1:27 | 1:35 | 2:41 | 1:34
bqp250-7	251;0	251;	4470 | 5138 | 9243 | 3128	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.2-6 | -1.7-6 | -2.2-7 | -1.2-6	1:22 | 1:28 | 2:55 | 1:25
bqp250-8	251;0	251;	2961 | 3534 | 6122 | 2126	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-3.3-7 | -6.5-7 | -4.2-7 | -5.8-8	55 | 1:00 | 1:57 | 57
bqp250-9	251;0	251;	4745 | 6121 | 10214 | 3440	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-5.9-8 | -4.0-7 | -6.8-7 | -3.3-7	1:25 | 1:45 | 3:14 | 1:34
bqp250-10	251;0	251;	3342 | 3992 | 6399 | 2122	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.1-6 | -1.2-6 | 3.4-6 | -1.1-6	1:01 | 1:06 | 2:01 | 57
bqp500-1	501;0	501;	6473 | 6932 | 14654 | 4086	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.4-6 | -3.4-7 | -1.3-6 | -1.6-6	8:35 | 9:45 | 23:07 | 9:13
bqp500-2	501;0	501;	8008 | 10582 | 22875 | 4862	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-4.2-7 | -8.6-8 | -2.4-8 | -1.2-6	10:46 | 14:42 | 38:45 | 10:52
bqp500-3	501;0	501;	8192 | 8915 | 25000 | 4965	9.9-7 | 9.9-7 | **1.7-4** | 9.9-7	-1.5-6 | 3.7-7 | **-1.5-3** | -5.8-7	12:53 | 12:25 | 39:46 | 11:22
bqp500-4	501;0	501;	7188 | 9012 | 20498 | 4031	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.0-6 | -3.8-7 | 8.5-7 | -1.2-6	10:37 | 12:10 | 32:48 | 9:11
bqp500-5	501;0	501;	6898 | 7641 | 25000 | 4541	9.9-7 | 9.9-7 | **1.6-4** | 9.9-7	-8.9-7 | -1.2-6 | **-1.4-3** | -8.2-7	10:34 | 10:57 | 41:02 | 10:19
bqp500-6	501;0	501;	6819 | 7010 | 17716 | 4236	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-8.9-7 | -1.4-6 | 3.2-6 | -7.4-7	10:22 | 9:43 | 28:59 | 9:37
bqp500-7	501;0	501;	6878 | 8592 | 17128 | 4587	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-5.4-7 | -7.9-8 | 1.7-6 | -5.2-7	10:23 | 12:40 | 28:01 | 10:33
bqp500-8	501;0	501;	7131 | 7647 | 17889 | 4867	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-5.3-7 | -9.0-7 | -3.3-6 | -7.5-7	10:54 | 10:22 | 27:42 | 11:02
bqp500-9	501;0	501;	6666 | 6700 | 17784 | 3803	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.7-6 | -1.2-6 | 1.5-6 | -8.1-7	10:21 | 9:31 | 29:58 | 8:43
bqp500-10	501;0	501;	7189 | 9162 | 25000 | 5067	9.9-7 | 9.9-7 | 8.5-5 | 9.9-7	-1.4-6 | -1.3-6 | **7.1-4** | -1.6-6	10:43 | 12:37 | 40:40 | 11:34
gka8a	101;0	101;	4267 | 5803 | 25000 | 14854	9.8-7 | 9.9-7 | 2.0-6 | 9.9-7	-1.3-6 | 9.0-7 | 3.1-6 | -1.7-6	15 | 17 | 1:36 | 1:10
gka9b	101;0	101;	1182 | 1314 | 1763 | 681	9.9-7 | 8.8-7 | 8.8-7 | 9.0-7	-5.5-5 | -1.5-5 | 4.6-6 | 2.6-7	04 | 05 | 07 | 03
gka10b	126;0	126;	1347 | 1811 | 2753 | 2544	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-2.3-5 | -2.4-5 | -1.9-5 | -1.1-5	08 | 10 | 20 | 16
gka7c	101;0	101;	3966 | 5025 | 10012 | 2896	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-6.8-7 | -5.2-7 | 1.9-8 | -4.2-7	15 | 16 | 41 | 14
gka1d	101;0	101;	3220 | 3006 | 8801 | 2239	9.9-7 | 9.9-7 | 9.6-7 | 9.9-7	-3.1-7 | -4.1-7 | -6.6-9 | -1.7-7	12 | 10 | 36 | 10
gka2d	101;0	101;	1768 | 2542 | 3813 | 1431	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-2.8-7 | -2.0-7 | 1.2-7 | 1.3-7	09 | 10 | 19 | 07
gka3d	101;0	101;	3149 | 3429 | 14301 | 3416	9.9-7 | 9.9-7 | 9.7-7 | 9.9-7	-1.8-7 | -1.7-8 | 2.6-8 | 4.3-8	12 | 12 | 1:02 | 16
gka4d	101;0	101;	2329 | 2626 | 4701 | 1386	9.9-7 | 9.9-7 | 8.8-7 | 9.9-7	-4.0-7 | -6.1-7 | 1.1-7 | 2.1-7	09 | 09 | 20 | 07
gka5d	101;0	101;	1664 | 1933 | 3844 | 1370	9.9-7 | 9.9-7 | 9.8-7 | 9.9-7	-1.4-7 | -2.2-7 | -3.8-7 | 5.0-7	07 | 07 | 16 | 06
gka6d	101;0	101;	1827 | 1901 | 4801 | 1559	9.9-7 | 9.9-7 | 9.0-7 | 9.9-7	3.2-7 | 4.2-7 | -9.1-7 | 2.1-6	07 | 07 | 20 | 07

Table 2: The performance of ADMM3c, SDPAD, ADMM3g, 2EBD on θ_+, FAP, QAP, BIQ and RCP problems (accuracy = 10^{-6}). In the table, "3c" and "3g" stand for ADMM3c and ADMM3g, respectively. The computation time is in the format of "hours:minutes:seconds".

			iteration	$\eta\|\eta\|\eta\|\hat{\eta}$	η_g	time
problem	$m_E; m_I$	n_s;	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD
gka7d	101;0	101;	1673 | 1685 | 3952 | 1284	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.1-6 | -9.3-7 | -7.1-7 | 4.3-7	07 | 06 | 17 | 06
gka8d	101;0	101;	3248 | 2945 | 9140 | 2317	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-4.1-8 | -3.2-7 | -3.4-9 | -1.8-7	13 | 11 | 39 | 11
gka9d	101;0	101;	1374 | 1547 | 3815 | 1311	9.9-7 | 9.9-7 | 9.9-7 | 9.6-7	-2.7-7 | -4.9-7 | 1.8-7 | 2.6-6	06 | 05 | 16 | 06
gka10d	101;0	101;	1719 | 1787 | 3982 | 1534	9.9-7 | 9.9-7 | 9.8-7 | 9.9-7	-5.5-7 | -1.1-6 | -1.5-6 | 1.9-6	07 | 06 | 17 | 07
gka1e	201;0	201;	4192 | 5075 | 7601 | 2805	9.9-7 | 9.9-7 | 9.2-7 | 9.9-7	-3.4-7 | -3.4-7 | -2.5-6 | -2.3-7	48 | 57 | 1:37 | 47
gka2e	201;0	201;	3506 | 3885 | 5687 | 2344	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-8.7-7 | -8.5-7 | 1.1-6 | -6.5-7	41 | 44 | 1:12 | 40
gka3e	201;0	201;	3496 | 3874 | 6952 | 2795	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-8.1-7 | -5.5-7 | -6.0-8 | -3.7-8	41 | 44 | 1:30 | 50
gka4e	201;0	201;	4273 | 4709 | 7401 | 2960	9.9-7 | 9.9-7 | 9.8-7 | 9.9-7	-7.4-7 | -5.8-7 | -8.2-7 | -3.9-7	49 | 53 | 1:35 | 50
gka5e	201;0	201;	3530 | 4162 | 6454 | 2589	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-4.0-7 | -3.0-7 | -2.2-7 | -3.3-7	41 | 46 | 1:22 | 43
gka1f	501;0	501;	6717 | 8147 | 16790 | 4600	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.3-6 | -1.2-6 | -3.9-6 | -5.6-7	9:38 | 11:28 | 27:55 | 10:31
gka2f	501;0	501;	7519 | 8949 | 15786 | 5403	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.5-6 | -1.4-6 | -3.3-6 | -1.0-6	10:50 | 12:52 | 26:27 | 12:10
gka3f	501;0	501;	6102 | 7037 | 13874 | 3957	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.1-6 | -2.0-6 | -6.8-6 | -1.6-7	9:07 | 10:46 | 23:23 | 9:07
gka4f	501;0	501;	6673 | 7529 | 19384 | 4070	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.1-6 | -4.2-7 | -1.2-6 | -3.5-7	9:13 | 11:20 | 31:45 | 9:14
gka5f	501;0	501;	6482 | 7023 | 16067 | 4210	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-5.9-7 | -9.4-7 | 1.5-6 | -7.5-7	9:14 | 10:36 | 26:17 | 9:45
soybean-small.2	48;0	47;	463 | 1743 | 2809 | 544	9.9-7 | 5.4-7 | 7.6-7 | 8.7-7	-1.2-6 | 5.1-7 | -1.9-7 | -4.4-7	01 | 05 | 05 | 03
soybean-small.3	48;0	47;	212 | 123 | 427 | 530	9.6-7 | 8.9-7 | 9.9-7 | 8.8-7	3.6-8 | 5.8-6 | -2.2-6 | 7.8-6	01 | 00 | 01 | 03
soybean-small.4	48;0	47;	440 | 478 | 888 | 868	9.5-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.6-6 | -1.7-9 | 1.3-6 | -1.1-6	01 | 01 | 02 | 04
soybean-small.5	48;0	47;	275 | 394 | 325 | 1106	9.6-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.8-7 | 6.8-7 | 1.2-6 | -6.1-7	01 | 01 | 01 | 06
soybean-small.6	48;0	47;	368 | 556 | 397 | 1001	9.1-7 | 9.3-7 | 8.0-7 | 8.6-7	-3.3-7 | -7.3-6 | 3.6-6 | -5.4-7	01 | 01 | 01 | 05
soybean-small.7	48;0	47;	385 | 851 | 540 | 1099	9.8-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.2-6 | -4.5-7 | -1.5-6 | -6.7-7	01 | 03 | 01 | 05
soybean-small.8	48;0	47;	1333 | 5863 | 1854 | 2647	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-2.8-7 | -5.9-8 | -9.1-7 | -5.9-7	03 | 18 | 05 | 15
soybean-small.9	48;0	47;	632 | 924 | 1056 | 1323	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.5-6 | -8.7-7 | -9.7-7 | -2.4-6	02 | 02 | 03 | 07
soybean-small.10	48;0	47;	327 | 531 | 441 | 1100	9.8-7 | 9.9-7 | 9.9-7 | 9.9-7	-5.9-6 | -2.8-6 | -9.6-6 | -8.8-6	01 | 01 | 01 | 05
soybean-small.11	48;0	47;	834 | 1834 | 814 | 1428	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.7-7 | 6.8-8 | -1.4-7 | -6.6-6	02 | 09 | 02 | 07
soybean-large.2	308;0	307;	1190 | 5050 | 12972 | 2261	9.2-7 | 9.9-7 | 9.9-7 | 9.9-7	-7.7-8 | -1.2-7 | -1.4-7 | -7.0-8	29 | 3:45 | 5:32 | 3:09
soybean-large.3	308;0	307;	922 | 5993 | 9156 | 2159	8.8-7 | 9.6-7 | 9.7-7 | 8.5-7	-2.1-7 | -5.4-9 | -1.2-10 | 1.4-7	24 | 4:47 | 3:59 | 3:54
soybean-large.4	308;0	307;	1609 | 13512 | 13201 | 3831	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-2.8-7 | -1.2-7 | -1.1-7 | -1.6-7	42 | 10:51 | 5:48 | 7:18
soybean-large.5	308;0	307;	850 | 2974 | 5410 | 1404	9.7-7 | 9.9-7 | 9.9-7 | 9.9-7	-9.1-8 | -7.9-8 | -8.4-8 | -1.7-7	23 | 2:23 | 2:22 | 2:05
soybean-large.6	308;0	307;	413 | 545 | 1365 | 681	9.4-7 | 6.8-7 | 9.7-7 | 9.1-7	-1.9-7 | 3.5-8 | 3.4-7 | 1.3-6	12 | 21 | 37 | 44
soybean-large.7	308;0	307;	1042 | 3443 | 5001 | 1422	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-2.5-8 | -1.2-8 | -8.9-8 | -5.4-8	29 | 2:44 | 2:19 | 2:10
soybean-large.8	308;0	307;	741 | 2294 | 2176 | 1456	9.9-7 | 9.9-7 | 9.9-7 | 9.8-7	-1.5-7 | -3.3-8 | -3.7-8 | 8.0-8	21 | 1:46 | 1:01 | 1:52
soybean-large.9	308;0	307;	948 | 3585 | 5801 | 2059	9.9-7 | 9.9-7 | 9.7-7 | 9.9-7	1.4-7 | -7.1-8 | -9.1-8 | -5.3-9	25 | 2:54 | 2:44 | 3:01
soybean-large.10	308;0	307;	359 | 434 | 627 | 1789	9.5-7 | 9.6-7 | 9.9-7 | 9.7-7	-1.0-7 | 8.1-7 | 4.4-7 | -5.0-7	11 | 11 | 18 | 1:58
soybean-large.11	308;0	307;	948 | 1231 | 1914 | 1609	6.5-7 | 9.2-7 | 9.9-7 | 9.1-7	1.0-6 | -2.6-6 | 1.6-6 | -2.7-6	26 | 32 | 55 | 1:50
spambase-small.2	301;0	300;	434 | 993 | 5543 | 1766	9.4-7 | 8.6-7 | 8.9-7 | 9.3-7	-1.1-6 | -1.9-6 | -3.7-6 | -3.2-7	12 | 28 | 2:16 | 1:39
spambase-small.3	301;0	300;	545 | 672 | 3301 | 1938	9.9-7 | 9.8-7 | 9.9-7 | 8.9-7	-5.2-7 | -5.9-7 | -2.0-8 | -2.9-7	14 | 22 | 1:22 | 2:06
spambase-small.4	301;0	300;	1295 | 6559 | 7301 | 4138	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-2.5-7 | -2.5-7 | -3.1-7 | -3.5-6	32 | 4:55 | 3:10 | 3:57
spambase-small.5	301;0	300;	604 | 635 | 873 | 2852	9.9-7 | 8.7-7 | 9.9-7 | 9.7-7	-1.7-5 | -7.2-6 | -1.0-6 | 8.2-5	17 | 15 | 23 | 2:46
spambase-small.6	301;0	300;	795 | 1388 | 1581 | 2488	9.9-7 | 9.9-7 | 9.9-7 | 9.8-7	-1.1-5 | 7.5-7 | -3.4-6 | 3.2-5	23 | 50 | 42 | 2:22
spambase-small.7	301;0	300;	832 | 979 | 1346 | 2821	9.9-7 | 9.9-7 | 9.9-7 | 9.7-7	1.2-5 | 1.1-5 | 2.3-6 | -9.4-6	24 | 24 | 36 | 2:51

Table 2: The performance of ADMM3c, SDPAD, ADMM3g, 2EBD on θ_+, FAP, QAP, BIQ and RCP problems (accuracy $= 10^{-6}$). In the table, "3c" and "3g" stand for ADMM3c and ADMM3g, respectively. The computation time is in the format of "hours:minutes:seconds".

			iteration	$\eta\|\eta\|\eta\|\hat{\eta}$	η_g	time
problem	$m_E; m_I$	$n_s;$	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD
spambase-small.8	301;0	300;	1032 | 949 | 1379 | 3677	9.9-7 | 9.9-7 | 9.9-7 | 9.6-7	3.2-6 | -1.3-5 | 2.0-6 | 3.6-5	30 | 24 | 37 | 3:29
spambase-small.9	301;0	300;	1032 | 1089 | 1426 | 7755	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.4-5 | -8.5-6 | -3.8-6 | -6.9-5	31 | 27 | 39 | 7:36
spambase-small.10	301;0	300;	1146 | 959 | 1394 | 17646	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.3-5 | -1.0-5 | -1.3-5 | 6.2-5	34 | 25 | 39 | 17:48
spambase-small.11	301;0	300;	1250 | 1369 | 1468 | 25000	9.9-7 | 9.9-7 | 9.9-7 | **2.6-4**	-3.8-5 | -1.4-5 | -2.2-5 | 2.4-5	36 | 36 | 42 | 24:51
spambase-medium.2	901;0	900;	574 | 547 | 4586 | 3022	9.8-7 | 9.9-7 | 9.9-7 | 9.9-7	3.2-6 | 6.0-6 | -1.0-5 | -1.1-5	3:27 | 3:04 | 30:09 | 37:08
spambase-medium.3	901;0	900;	1273 | 4654 | 12723 | 4358	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.0-6 | -9.2-7 | -1.1-6 | -9.1-7	7:27 | 53:27 | 1:26:00 | 1:14:39
spambase-medium.4	901;0	900;	2746 | 3386 | 3766 | 25000	9.6-7 | 9.9-7 | 9.7-7 | **2.1-2**	2.1-5 | 1.8-5 | -2.6-5 | **-4.0-1**	19:01 | 18:35 | 24:58 | 5:05:33
spambase-medium.5	901;0	900;	1725 | 3992 | 2701 | 5746	9.9-7 | 9.9-7 | 9.8-7 | 9.9-7	-1.8-6 | -5.5-7 | -1.1-5 | -1.4-6	12:26 | 45:23 | 18:24 | 1:38:45
spambase-medium.6	901;0	900;	1516 | 3073 | 2601 | 4000	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	1.3-6 | -2.4-7 | -8.3-6 | -4.7-7	11:35 | 32:42 | 18:18 | 1:10:59
spambase-medium.7	901;0	900;	1769 | 3802 | 2607 | 4278	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.2-6 | -3.2-7 | 3.5-5 | -7.9-7	13:06 | 43:38 | 16:59 | 1:17:52
spambase-medium.8	901;0	900;	1620 | 3010 | 2166 | 3502	9.9-7 | 9.9-7 | 9.8-7 | 9.9-7	2.2-6 | -3.5-7 | -5.6-5 | 1.6-7	12:10 | 32:40 | 14:18 | 58:58
spambase-medium.9	901;0	900;	1284 | 1709 | 2934 | 3004	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.3-5 | -7.1-6 | 9.9-7 | 2.7-6	10:38 | 13:41 | 19:36 | 47:54
spambase-medium.10	901;0	900;	1342 | 1436 | 1996 | 3080	9.9-7 | 9.8-7 | 9.4-7 | 9.8-7	7.1-5 | **-1.0-4** | 9.2-5 | **1.1-4**	11:03 | 9:10 | 14:15 | 38:20
spambase-medium.11	901;0	900;	1409 | 1698 | 2687 | 25000	9.5-7 | 9.8-7 | 9.9-7 | **4.4-4**	-7.9-5 | **-1.3-4** | -8.4-5 | **6.7-2**	10:58 | 10:22 | 18:57 | 5:05:35
spambase-large.2	1501;0	1500;	535 | 992 | 4528 | 4429	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.3-5 | -1.2-5 | -1.3-5 | -1.3-5	11:17 | 22:17 | 1:51:27 | 3:12:36
spambase-large.3	1501;0	1500;	1705 | 1830 | 5301 | 6617	9.8-7 | 9.9-7 | 9.9-7 | 9.9-7	-7.6-6 | -6.6-6 | -1.1-5 | -3.3-6	35:47 | 58:10 | 2:14:58 | 6:13:50
spambase-large.4	1501;0	1500;	3761 | 7091 | 10801 | 25000	9.9-7 | 9.9-7 | 9.9-7 | **2.2-2**	9.4-8 | -5.2-7 | -4.2-7 | **-10.0-1**	1:19:26 | 5:32:29 | 4:33:51 | 17:57:38
spambase-large.5	1501;0	1500;	8398 | 7510 | 10621 | 25000	9.9-7 | 9.8-7 | 9.9-7 | **1.1-2**	-2.9-5 | -2.4-5 | 2.4-5 | **3.0-1**	3:26:14 | 3:21:11 | 4:32:59 | 18:14:24
spambase-large.6	1501;0	1500;	2031 | 2415 | 4674 | 25000	9.9-7 | 9.9-7 | 9.9-7 | **1.8-2**	-4.2-5 | -5.8-5 | -3.0-5 | **-10.0-1**	49:32 | 1:07:56 | 1:54:11 | 17:07:48
spambase-large.7	1501;0	1500;	1596 | 1584 | 3001 | 6042	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.8-5 | -1.0-5 | -3.2-5 | -1.5-7	36:51 | 50:54 | 1:19:23 | 6:02:07
spambase-large.8	1501;0	1500;	1449 | 1461 | 2787 | 6050	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-5.0-5 | -9.5-5 | -6.6-5 | 9.2-5	31:01 | 39:20 | 1:16:31 | 4:16:11
spambase-large.9	1501;0	1500;	2010 | 1973 | 3695 | 9832	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-9.3-5 | **-1.4-4** | 3.1-6 | **4.5-4**	43:12 | 57:24 | 1:33:19 | 7:27:54
spambase-large.10	1501;0	1500;	2728 | 2450 | 4401 | 25000	9.7-7 | 9.9-7 | 9.8-7 | 1.4-5	**1.3-4** | **-1.3-4** | -3.8-5 | **1.8-3**	1:00:43 | 1:12:14 | 1:52:10 | 18:26:46
spambase-large.11	1501;0	1500;	2704 | 2526 | 3496 | 4532	9.7-7 | 9.9-7 | 9.7-7 | 9.8-7	**1.8-4** | **-1.7-4** | -9.1-6 | **1.5-4**	1:04:55 | 1:08:26 | 1:30:21 | 3:52:02
abalone-small.2	201;0	200;	384 | 916 | 1396 | 664	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	1.4-6 | -4.2-7 | -2.6-7 | 4.2-7	05 | 14 | 14 | 19
abalone-small.3	201;0	200;	268 | 295 | 790 | 318	9.8-7 | 9.8-7 | 9.9-7 | 9.9-7	-1.0-5 | 1.5-6 | -9.2-6 | -6.2-6	03 | 03 | 08 | 09
abalone-small.4	201;0	200;	486 | 818 | 632 | 799	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-6.2-7 | 1.8-7 | -7.9-6 | -4.9-6	07 | 11 | 07 | 21
abalone-small.5	201;0	200;	554 | 808 | 886 | 1337	9.9-7 | 9.8-7 | 9.9-7 | 9.9-7	-5.1-6 | -9.9-6 | -1.4-5 | -7.2-6	06 | 09 | 10 | 37
abalone-small.6	201;0	200;	523 | 736 | 1020 | 1581	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.6-5 | -4.4-5 | -3.5-5 | -3.5-5	07 | 07 | 11 | 42
abalone-small.7	201;0	200;	1005 | 1428 | 1909 | 2832	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.1-5 | 3.6-5 | 1.7-5 | -2.5-5	12 | 14 | 22 | 1:17
abalone-small.8	201;0	200;	1103 | 1367 | 1924 | 2810	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-2.9-5 | 5.4-5 | -5.7-6 | -8.1-5	15 | 14 | 22 | 1:14
abalone-small.9	201;0	200;	1263 | 1421 | 1905 | 3185	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-7.8-5 | -2.3-5 | -2.3-5 | **-1.3-4**	15 | 15 | 22 | 1:28
abalone-small.10	201;0	200;	1770 | 1701 | 2424 | 4954	9.9-7 | 9.9-7 | 9.9-7 | 9.8-7	-6.2-5 | **-2.3-4** | -9.5-5 | 4.8-6	21 | 17 | 28 | 2:13
abalone-small.11	201;0	200;	1106 | 1760 | 2138 | 4504	9.9-7 | 9.8-7 | 9.9-7 | 9.8-7	-5.9-5 | **1.4-4** | 7.8-6 | **-1.7-4**	14 | 18 | 25 | 2:05
abalone-medium.2	401;0	400;	502 | 539 | 2175 | 782	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-6.8-8 | 5.6-7 | 1.2-6 | -4.0-7	25 | 26 | 1:49 | 1:33
abalone-medium.3	401;0	400;	617 | 2599 | 2647 | 1362	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	6.4-7 | -5.3-7 | -5.3-7 | -2.5-7	30 | 3:48 | 2:21 | 4:14
abalone-medium.4	401;0	400;	378 | 506 | 856 | 390	9.9-7 | 9.9-7 | 9.9-7 | 9.8-7	4.0-7 | -3.7-7 | -1.1-5 | -5.5-6	19 | 24 | 46 | 48
abalone-medium.5	401;0	400;	578 | 798 | 1061 | 839	9.9-7 | 9.9-7 | 9.8-7 | 9.9-7	-2.5-6 | -8.6-7 | -1.1-5 | -5.1-6	31 | 41 | 58 | 1:58
abalone-medium.6	401;0	400;	608 | 892 | 1168 | 1065	9.8-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.3-5 | -4.1-5 | -3.2-5 | -3.0-5	37 | 42 | 1:04 | 2:03
abalone-medium.7	401;0	400;	1159 | 1516 | 1971 | 1981	9.7-7 | 9.7-7 | 9.9-7 | 9.5-7	-9.2-6 | -6.6-6 | -1.5-5 | -2.6-5	1:06 | 1:26 | 1:47 | 4:00

Table 2: The performance of ADMM3c, SDPAD, ADMM3g, 2EBD on θ_+, FAP, QAP, BIQ and RCP problems (accuracy = 10^{-6}). In the table, "3c" and "3g" stand for ADMM3c and ADMM3g, respectively. The computation time is in the format of "hours:minutes:seconds".

			iteration	$\eta\|\eta\|\eta\|\hat{\eta}$	η_g	time
problem	$m_E; m_I$	n_s;	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD
abalone-medium.8	401;0	400;	957 | 1062 | 1379 | 1617	9.6-7 | 9.9-7 | 9.9-7 | 8.0-7	-7.5-6 | 4.1-5 | -1.5-5 | 4.8-5	54 | 53 | 1:16 | 3:04
abalone-medium.9	401;0	400;	1213 | 1455 | 2016 | 2876	9.8-7 | 9.9-7 | 9.9-7 | 9.9-7	-7.9-6 | 2.0-5 | 3.4-6 | -5.4-5	1:16 | 1:11 | 1:54 | 5:39
abalone-medium.10	401;0	400;	1489 | 1777 | 2433 | 4120	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-5.5-5 | -4.3-5 | -5.0-5 | -8.2-5	1:27 | 1:25 | 2:17 | 7:48
abalone-medium.11	401;0	400;	1402 | 1682 | 2105 | 3361	9.8-7 | 9.9-7 | 9.5-7 | 9.9-7	-6.2-5 | -8.4-5 | -8.9-5 | -7.4-5	1:24 | 1:25 | 2:03 | 6:42
abalone-large.2	1001;0	1000;	576 | 650 | 3168 | 1493	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	1.2-5 | 6.6-6 | -2.9-6 | -1.4-6	5:07 | 5:08 | 26:57 | 31:13
abalone-large.3	1001;0	1000;	765 | 796 | 3141 | 1306	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-3.6-6 | -9.9-7 | -1.7-6 | -4.2-6	6:09 | 8:56 | 26:36 | 22:21
abalone-large.4	1001;0	1000;	545 | 629 | 1457 | 710	9.9-7 | 9.6-7 | 9.9-7 | 9.9-7	1.9-6 | -6.9-6 | 2.4-5 | -9.2-7	6:50 | 5:01 | 12:25 | 12:03
abalone-large.5	1001;0	1000;	834 | 1107 | 1429 | 833	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.5-5 | -2.1-5 | -1.1-5 | -2.1-5	8:39 | 9:11 | 12:20 | 14:17
abalone-large.6	1001;0	1000;	796 | 1101 | 1864 | 950	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.4-5 | -1.8-5 | -1.9-5 | -1.9-5	8:21 | 8:49 | 16:08 | 15:24
abalone-large.7	1001;0	1000;	1089 | 1388 | 2156 | 1230	9.9-7 | 9.9-7 | 9.9-7 | 9.8-7	-2.1-5 | -2.7-6 | -1.4-5 | -1.8-5	10:57 | 11:52 | 18:32 | 25:24
abalone-large.8	1001;0	1000;	1066 | 1376 | 2140 | 1480	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-5.3-5 | -6.3-5 | -6.7-5 | **-1.0-4**	11:32 | 11:22 | 19:06 | 24:22
abalone-large.9	1001;0	1000;	1611 | 1980 | 3285 | 2578	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-3.7-5 | -9.5-5 | -7.0-5 | -6.9-5	16:46 | 16:36 | 30:36 | 45:58
abalone-large.10	1001;0	1000;	1855 | 2022 | 2781 | 3093	9.8-7 | 8.6-7 | 9.7-7 | 9.9-7	-2.2-5 | -6.1-5 | -4.8-5 | -9.2-5	16:45 | 16:25 | 25:57 | 50:13
abalone-large.11	1001;0	1000;	2212 | 2604 | 3724 | 3118	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-4.1-5 | 9.9-6 | -1.9-5 | -4.7-5	19:27 | 21:44 | 34:06 | 55:26
segment-small.2	401;0	400;	1825 | 11613 | 17701 | 4663	9.1-7 | 9.9-7 | 8.1-7 | 9.4-7	2.3-7 | -2.4-8 | -1.7-7 | 1.2-7	1:31 | 16:59 | 14:47 | 12:12
segment-small.3	401;0	400;	1628 | 15740 | 17541 | 4433	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-3.8-7 | -2.7-7 | -2.2-7 | -2.8-7	1:24 | 24:31 | 14:57 | 13:16
segment-small.4	401;0	400;	1303 | 7910 | 9601 | 3532	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-6.5-7 | -2.5-7 | -3.6-7 | -4.5-7	1:09 | 12:04 | 8:16 | 10:01
segment-small.5	401;0	400;	2603 | 25000 | 25000 | 7183	9.9-7 | 1.4-6 | 1.2-6 | 9.9-7	-1.7-6 | -1.0-6 | -9.8-7 | -1.1-6	2:26 | 41:39 | 23:35 | 24:24
segment-small.6	401;0	400;	1989 | 21361 | 19501 | 5225	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-8.5-7 | -4.9-7 | -6.0-7 | -8.1-7	1:50 | 34:38 | 19:49 | 16:50
segment-small.7	401;0	400;	1047 | 5991 | 5490 | 2638	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-5.0-8 | -2.1-7 | -2.5-7 | -4.8-7	59 | 9:37 | 5:03 | 7:22
segment-small.8	401;0	400;	1318 | 7160 | 4764 | 2929	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.8-6 | -3.7-8 | -1.8-7 | -1.0-6	1:18 | 11:32 | 4:32 | 7:37
segment-small.9	401;0	400;	838 | 3506 | 2388 | 1874	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.7-6 | -1.5-7 | -2.8-7 | -2.3-6	54 | 5:32 | 2:33 | 4:34
segment-small.10	401;0	400;	1206 | 8018 | 4701 | 2778	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-5.7-7 | -1.2-7 | -2.5-7 | -8.0-7	1:19 | 13:11 | 4:34 | 7:49
segment-small.11	401;0	400;	1331 | 7216 | 4701 | 2772	9.9-7 | 9.9-7 | 9.8-7 | 9.9-7	-8.5-7 | -1.4-7 | -2.3-7 | -5.5-7	1:25 | 12:10 | 4:58 | 7:42
segment-medium.2	701;0	700;	1090 | 923 | 2198 | 1602	9.7-7 | 9.5-7 | 9.7-7 | 9.6-7	3.8-6 | -4.1-6 | -3.3-6 | 9.2-7	3:39 | 2:55 | 8:01 | 12:29
segment-medium.3	701;0	700;	706 | 652 | 1401 | 1794	9.3-7 | 9.2-7 | 9.5-7 | 9.9-7	-2.1-6 | 1.8-6 | -8.3-7 | -8.4-7	2:29 | 1:58 | 5:09 | 13:59
segment-medium.4	701;0	700;	2166 | 18449 | 17001 | 5876	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-4.9-7 | -3.9-7 | -4.0-7 | -4.3-7	6:56 | 2:00:11 | 1:00:52 | 1:08:15
segment-medium.5	701;0	700;	2455 | 19871 | 16186 | 6655	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-8.4-7 | -5.4-7 | -5.3-7 | -7.1-7	7:55 | 2:11:27 | 58:14 | 1:23:14
segment-medium.6	701;0	700;	3070 | 25000 | 25000 | 8859	9.9-7 | 1.7-6 | 1.5-6 | 9.9-7	-1.4-6 | -1.4-6 | -1.3-6 | -1.0-6	10:10 | 2:45:00 | 1:30:37 | 1:54:53
segment-medium.7	701;0	700;	3339 | 25000 | 25000 | 9603	9.1-7 | 1.5-6 | 1.5-6 | 9.9-7	-1.4-6 | -1.5-6 | -1.5-6 | -1.2-6	11:22 | 2:47:46 | 1:33:08 | 1:58:45
segment-medium.8	701;0	700;	3099 | 25000 | 24001 | 9757	9.9-7 | 1.0-6 | 9.9-7 | 9.9-7	-2.0-6 | -7.2-7 | -6.7-7 | -1.2-6	9:37 | 2:46:33 | 1:26:57 | 1:55:47
segment-medium.9	701;0	700;	2373 | 2755 | 6103 | 6829	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.9-6 | -4.1-7 | -4.6-7 | -8.7-7	7:18 | 12:34 | 21:43 | 1:06:28
segment-medium.10	701;0	700;	1818 | 1813 | 4701 | 5099	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	1.6-7 | 7.6-8 | -2.3-7 | -1.7-7	5:26 | 6:43 | 16:31 | 48:39
segment-medium.11	701;0	700;	1593 | 1676 | 2501 | 25000	9.9-7 | 9.9-7 | 9.9-7 | **1.4-4**	6.7-6 | 7.5-6 | 3.0-6 | **-1.5-4**	4:54 | 5:53 | 9:14 | 3:05:45
segment-large.2	1001;0	1000;	1264 | 1080 | 4201 | 1745	9.9-7 | 9.8-7 | 8.9-7 | 9.9-7	5.0-6 | -4.7-6 | 3.5-8 | -5.0-7	9:15 | 8:27 | 36:13 | 34:22
segment-large.3	1001;0	1000;	373 | 412 | 3714 | 1956	9.9-7 | 9.8-7 | 9.9-7 | 9.9-7	1.8-6 | -7.1-7 | -5.4-6 | -1.1-6	2:41 | 3:33 | 31:35 | 37:08
segment-large.4	1001;0	1000;	2024 | 19479 | 21201 | 6354	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-5.5-7 | -4.5-7 | -4.5-7 | -5.0-7	14:50 | 5:23:13 | 3:05:07 | 3:07:06
segment-large.5	1001;0	1000;	2711 | 22003 | 25000 | 8257	9.9-7 | 9.9-7 | 1.0-6 | 9.9-7	-6.7-7 | -6.0-7 | -5.8-7 | -6.4-7	20:31 | 6:09:59 | 3:44:53 | 4:19:44
segment-large.6	1001;0	1000;	3262 | 25000 | 25000 | 10211	9.9-7 | 1.3-6 | 1.3-6 | 9.9-7	-1.5-6 | -9.6-7 | -1.0-6 | -1.0-6	24:06 | 7:10:04 | 3:38:02 | 5:25:59
segment-large.7	1001;0	1000;	3600 | 25000 | 25000 | 11657	9.9-7 | 1.8-6 | 1.7-6 | 9.9-7	-1.3-6 | -1.9-6 | -1.8-6 | -1.3-6	27:48 | 7:15:10 | 3:40:26 | 6:13:44

Table 2: The performance of ADMM3c, SDPAD, ADMM3g, 2EBD on θ_+, FAP, QAP, BIQ and RCP problems (accuracy = 10^{-6}). In the table, "3c" and "3g" stand for ADMM3c and ADMM3g, respectively. The computation time is in the format of "hours:minutes:seconds".

			iteration	$\eta\|\,\eta\|\,\eta\|\,\hat{\eta}$	η_g	time
problem	$m_E; m_I$	$n_s;$	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD	3c|SDPAD|3g|2EBD
segment-large.8	1001;0	1000;	3161 | 20284 | 25000 | 9511	9.9-7 | 9.9-7 | 1.2-6 | 9.9-7	-1.1-6 | -9.4-7 | -1.1-6 | -1.1-6	24:42 | 5:46:25 | 3:47:00 | 5:15:17
segment-large.9	1001;0	1000;	2383 | 12121 | 14501 | 8064	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-1.9-6 | -5.3-7 | -6.2-7 | -1.1-6	18:03 | 3:23:40 | 2:12:38 | 4:10:03
segment-large.10	1001;0	1000;	1789 | 1676 | 4701 | 4527	9.9-7 | 9.9-7 | 9.9-7 | 9.9-7	-3.1-7 | -6.1-6 | -2.8-7 | -3.0-7	13:42 | 13:51 | 43:14 | 1:53:18
segment-large.11	1001;0	1000;	1683 | 1827 | 2225 | 25000	9.9-7 | 9.9-7 | 9.9-7 | 2.9-5	-1.9-6 | 6.0-6 | -1.5-7 | **1.1-4**	13:07 | 15:29 | 20:12 | 6:50:17
housing.2	507;0	506;	3284 | 2679 | 5397 | 2566	9.6-7 | 9.9-7 | 9.9-7 | 8.6-7	-5.4-6 | -5.2-6 | 5.8-6 | -5.3-6	4:31 | 3:26 | 8:32 | 7:52
housing.3	507;0	506;	1247 | 1523 | 2411 | 1338	9.9-7 | 9.9-7 | 9.9-7 | 9.8-7	8.0-6 | -6.7-6 | 3.2-5 | 5.2-6	1:34 | 1:56 | 3:41 | 4:29
housing.4	507;0	506;	1368 | 1064 | 2008 | 1090	9.9-7 | 9.9-7 | 9.9-7 | 8.4-7	-3.5-6 | -4.9-6 | -4.2-6 | 8.3-5	2:00 | 1:25 | 3:05 | 3:40
housing.5	507;0	506;	1319 | 1916 | 2593 | 1451	9.6-7 | 9.3-7 | 9.9-7 | 8.8-7	-3.2-5 | 3.6-5 | 3.1-5 | 6.3-5	2:07 | 2:36 | 4:04 | 5:03
housing.6	507;0	506;	536 | 842 | 964 | 1958	9.9-7 | 9.8-7 | 9.9-7 | 9.5-7	-9.7-6 | 5.9-6 | -1.7-5 | 6.3-5	53 | 1:20 | 1:32 | 6:29
housing.7	507;0	506;	645 | 856 | 1147 | 2235	9.9-7 | 9.8-7 | 9.9-7 | 9.9-7	-2.6-5 | -4.6-5 | -3.1-5 | -7.5-5	1:06 | 1:15 | 1:51 | 7:35
housing.8	507;0	506;	638 | 924 | 1017 | 1700	9.8-7 | 9.7-7 | 9.9-7 | 9.5-7	-1.9-5 | -1.3-5 | -1.7-5 | -5.6-5	1:05 | 1:23 | 1:43 | 5:40
housing.9	507;0	506;	794 | 1173 | 1634 | 2466	9.5-7 | 9.8-7 | 9.9-7 | 9.9-7	-3.7-5 | 3.7-5 | -4.7-5 | 3.8-5	1:27 | 1:43 | 2:50 | 8:23
housing.10	507;0	506;	1016 | 1275 | 1538 | 25000	9.9-7 | 9.9-7 | 9.9-7 | 6.4-5	-1.7-5 | -2.6-5 | -2.6-5 | **2.2-3**	1:40 | 1:57 | 2:39 | 1:18:42
housing.11	507;0	506;	844 | 1310 | 1342 | 25000	9.9-7 | 9.6-7 | 9.9-7 | 6.7-5	-2.9-5 | -2.5-5 | -2.9-5 | **-7.4-3**	1:24 | 1:54 | 2:15 | 1:20:22

Table 3: The performance of PADMM3c, LADMM4g, PADMM4d, PADMM4d(1) on extended BIQ problems (accuracy = 10^{-5}). In the table, we have omitted the command string "ADMM" in the names of the solvers. The computation time is in the format of "hours:minutes:seconds".

			iteration	η	η_g	time
problem	$m_E; m_I$	n_s;	P3c|L4g|P4d|P4d(1)	P3c|L4g|P4d|P4d(1)	P3c|L4g|P4d|P4d(1)	P3c|L4g|P4d|P4d(1)
be100.1	101;14850	101;	8606 | 20382 | 9217 | 11774	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	1.0-6 | -1.1-5 | -7.3-7 | 6.7-7	1:32 | 4:35 | 1:35 | 1:59
be100.2	101;14850	101;	5762 | 15401 | 6606 | 8702	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-7.5-6 | -9.5-6 | -5.9-6 | -5.9-6	59 | 3:28 | 1:05 | 1:26
be100.3	101;14850	101;	5913 | 20770 | 7295 | 7991	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-6.8-6 | -7.4-6 | -5.8-6 | -7.8-6	1:05 | 4:42 | 1:14 | 1:20
be100.4	101;14850	101;	7402 | 19968 | 7667 | 9521	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-7.5-6 | -1.1-5 | -9.1-6 | -1.2-5	1:16 | 4:26 | 1:16 | 1:33
be100.5	101;14850	101;	5354 | 10701 | 5212 | 6858	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	1.5-6 | -9.1-6 | -5.5-6 | -1.3-6	55 | 2:22 | 53 | 1:09
be100.6	101;14850	101;	7601 | 13950 | 7270 | 10486	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	5.1-6 | -7.2-6 | 2.0-6 | 4.8-6	1:19 | 3:08 | 1:12 | 1:45
be100.7	101;14850	101;	6531 | 16401 | 8425 | 10744	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-1.9-6 | -5.9-6 | 1.9-8 | -2.9-8	1:09 | 3:38 | 1:26 | 1:47
be100.8	101;14850	101;	6754 | 17424 | 6647 | 8471	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-3.3-6 | -7.4-6 | -5.3-6 | -3.8-6	1:09 | 3:51 | 1:05 | 1:25
be100.9	101;14850	101;	5233 | 11475 | 5852 | 6969	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-2.4-5 | -1.2-5 | -8.5-6 | -2.3-5	55 | 2:35 | 58 | 1:10
be100.10	101;14850	101;	5543 | 9002 | 5988 | 6557	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-2.4-5 | -1.1-5 | -1.8-6 | -1.3-5	56 | 2:00 | 58 | 1:05
be120.3.1	121;21420	121;	8150 | 23001 | 8824 | 13631	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-4.9-6 | -9.6-6 | -1.7-6 | -1.9-6	1:59 | 7:10 | 2:05 | 3:10
be120.3.2	121;21420	121;	7703 | 16426 | 8505 | 11281	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	3.8-6 | -1.2-5 | 3.4-6 | 3.9-6	1:48 | 5:06 | 1:55 | 2:36
be120.3.3	121;21420	121;	6256 | 14464 | 7114 | 7809	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	1.8-6 | -7.5-6 | 2.7-6 | -2.6-6	1:32 | 4:31 | 1:41 | 1:49
be120.3.4	121;21420	121;	8260 | 22302 | 10485 | 13297	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-9.8-6 | -8.7-6 | -8.8-6 | -8.9-6	2:02 | 6:56 | 2:26 | 3:05
be120.3.5	121;21420	121;	7102 | 16301 | 8215 | 10407	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-1.5-5 | -1.3-5 | -6.1-6 | -6.2-6	1:48 | 5:03 | 1:56 | 2:27
be120.3.6	121;21420	121;	7853 | 17812 | 8606 | 10432	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-3.4-6 | -1.1-5 | -4.5-6 | -7.0-6	1:53 | 5:36 | 1:58 | 2:25
be120.3.7	121;21420	121;	9410 | 22816 | 10037 | 13140	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-2.8-6 | -9.8-6 | 9.8-7 | 2.3-7	2:25 | 7:08 | 2:24 | 3:03
be120.3.8	121;21420	121;	9692 | 20714 | 11051 | 15132	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-4.2-6 | -1.1-5 | -2.6-6 | -2.5-6	2:20 | 6:30 | 2:33 | 3:34
be120.3.9	121;21420	121;	6095 | 10388 | 6315 | 8770	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	5.0-6 | -9.1-6 | 5.9-6 | 4.8-6	1:30 | 3:11 | 1:32 | 2:02
be120.3.10	121;21420	121;	7738 | 12701 | 8776 | 10392	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	9.5-6 | -7.9-6 | 8.8-6 | 9.1-6	1:53 | 3:59 | 2:03 | 2:26
be120.8.1	121;21420	121;	5011 | 9202 | 5701 | 7936	9.9-6 | 9.8-6 | 9.9-6 | 9.9-6	-1.8-6 | -5.6-6 | 1.3-9 | 6.1-8	1:13 | 2:50 | 1:22 | 1:51
be120.8.2	121;21420	121;	8314 | 16401 | 6479 | 10879	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	4.6-6 | -8.1-6 | -1.1-6 | 3.7-6	2:00 | 5:09 | 1:31 | 2:32
be120.8.3	121;21420	121;	6321 | 11094 | 6809 | 9270	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-1.6-6 | -1.1-5 | -4.3-6 | -6.1-7	1:37 | 3:25 | 1:40 | 2:08
be120.8.4	121;21420	121;	7671 | 16978 | 9488 | 12349	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	4.5-6 | -7.0-6 | 3.8-6 | 3.5-6	1:51 | 5:19 | 2:12 | 2:51
be120.8.5	121;21420	121;	7255 | 14458 | 7766 | 9734	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-6.5-6 | -1.2-5 | -5.8-6 | -5.2-6	1:48 | 4:33 | 1:52 | 2:17
be120.8.6	121;21420	121;	6330 | 10701 | 7046 | 8627	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	6.7-6 | -6.1-6 | 2.5-6 | 6.8-6	1:29 | 3:21 | 1:36 | 1:59
be120.8.7	121;21420	121;	7698 | 16901 | 8623 | 10339	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-1.1-6 | -7.6-6 | -2.8-6 | -9.9-7	1:59 | 5:11 | 2:07 | 2:25
be120.8.8	121;21420	121;	6590 | 13101 | 6908 | 9073	9.9-6 | 9.8-6 | 9.9-6 | 9.9-6	-3.5-6 | -9.1-6 | -3.1-6 | -3.4-6	1:32 | 4:08 | 1:33 | 2:05
be120.8.9	121;21420	121;	7167 | 12436 | 7416 | 9300	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	1.1-7 | -1.3-5 | 4.0-7 | -2.1-7	1:46 | 3:51 | 1:50 | 2:14
be120.8.10	121;21420	121;	6312 | 15368 | 6981 | 8647	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-2.6-5 | -1.2-5 | -1.4-5 | -1.7-5	1:31 | 4:49 | 1:35 | 1:57
be150.3.1	151;33525	151;	10145 | 16601 | 8225 | 14204	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	3.7-6 | -9.0-6 | -9.5-6 | 2.4-6	4:07 | 7:50 | 3:12 | 5:29
be150.3.2	151;33525	151;	8520 | 16180 | 8748 | 11002	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	3.5-8 | -8.1-6 | -1.8-6 | -3.0-6	3:15 | 8:01 | 3:19 | 4:02
be150.3.3	151;33525	151;	7338 | 14901 | 8046 | 10755	9.9-6 | 9.8-6 | 9.9-6 | 9.9-6	1.2-6 | -9.7-6 | 2.0-6 | 2.6-6	2:57 | 7:08 | 3:09 | 3:58
be150.3.4	151;33525	151;	9693 | 22148 | 10004 | 11461	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	3.7-6 | -8.3-6 | 2.6-6 | -1.2-5	3:43 | 10:54 | 3:47 | 4:24
be150.3.5	151;33525	151;	7604 | 12701 | 8952 | 11818	9.9-6 | 9.8-6 | 9.9-6 | 9.9-6	-9.4-6 | -1.4-5 | -1.3-5 | -1.4-5	3:09 | 6:11 | 3:40 | 4:15
be150.3.6	151;33525	151;	7208 | 10510 | 8127 | 10516	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	2.1-6 | -5.4-6 | 2.1-6 | 2.0-6	2:39 | 5:11 | 2:52 | 3:38
be150.3.7	151;33525	151;	8804 | 20701 | 9604 | 12241	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-1.1-5 | -8.6-6 | -1.0-5 | -9.4-6	3:33 | 9:47 | 3:37 | 4:39
be150.3.8	151;33525	151;	8402 | 14176 | 9191 | 11962	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	3.7-6 | -6.9-6 | -2.4-6 | -1.6-6	3:09 | 7:15 | 3:20 | 4:21
be150.3.9	151;33525	151;	5600 | 10401 | 5552 | 7309	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	6.3-6 | -7.6-6 | -7.2-7 | 6.4-6	2:06 | 4:53 | 2:09 | 2:46
be150.3.10	151;33525	151;	9171 | 17126 | 9122 | 12000	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-2.1-6 | -1.1-5 | -2.9-7 | -1.6-6	3:38 | 8:29 | 3:20 | 4:27

Table 3: The performance of PADMM3c, LADMM4g, PADMM4d, PADMM4d(1) on extended BIQ problems (accuracy = 10^{-5}). In the table, we have omitted the command string "ADMM" in the names of the solvers. The computation time is in the format of "hours:minutes:seconds".

			iteration	η	η_g	time
problem	$m_E; m_I$	n_s;	P3c|L4g|P4d|P4d(1)	P3c|L4g|P4d|P4d(1)	P3c|L4g|P4d|P4d(1)	P3c|L4g|P4d|P4d(1)
be150.8.1	151;33525	151;	6892 | 12396 | 7708 | 10175	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-8.6-7 | -9.4-6 | -2.0-6 | -3.2-6	2:41 | 5:49 | 2:55 | 3:49
be150.8.2	151;33525	151;	6424 | 9980 | 6376 | 8702	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	4.1-6 | -1.1-5 | 6.4-7 | 9.3-7	2:21 | 4:46 | 2:14 | 3:12
be150.8.3	151;33525	151;	7776 | 24228 | 7570 | 10905	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	7.6-7 | -7.5-6 | -5.9-6 | 2.4-6	3:12 | 11:42 | 3:05 | 4:09
be150.8.4	151;33525	151;	9003 | 14801 | 10205 | 11269	9.9-6 | 9.5-6 | 9.9-6 | 9.9-6	-2.0-6 | -7.8-6 | -2.0-6 | -1.8-6	3:24 | 7:30 | 3:50 | 4:07
be150.8.5	151;33525	151;	6439 | 16501 | 6818 | 11062	9.9-6 | 9.8-6 | 9.9-6 | 9.9-6	-2.0-6 | -9.4-6 | -3.0-6 | 2.0-6	2:39 | 7:54 | 2:52 | 4:08
be150.8.6	151;33525	151;	8032 | 12222 | 8106 | 9908	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	4.9-6 | -9.8-6 | 4.0-6 | 3.8-6	3:02 | 6:09 | 2:56 | 3:41
be150.8.7	151;33525	151;	9377 | 16201 | 9702 | 12648	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	1.8-7 | -8.6-6 | 2.9-7 | -2.6-7	3:47 | 7:42 | 3:54 | 4:47
be150.8.8	151;33525	151;	9086 | 15302 | 9650 | 11849	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-1.2-6 | -7.6-6 | -2.1-6 | 3.4-7	3:32 | 7:49 | 3:36 | 4:28
be150.8.9	151;33525	151;	8001 | 16144 | 8229 | 11175	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	3.2-6 | -8.6-6 | 1.6-6 | 2.5-6	3:19 | 7:32 | 3:14 | 4:16
be150.8.10	151;33525	151;	8202 | 17682 | 8888 | 11424	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-8.0-6 | -9.0-6 | -8.2-6 | -8.3-6	3:11 | 8:44 | 3:19 | 4:11
be200.3.1	201;59700	201;	8943 | 14140 | 9729 | 12236	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	3.2-7 | -7.1-6 | -1.8-6 | -1.4-7	7:34 | 12:45 | 7:22 | 9:04
be200.3.2	201;59700	201;	7665 | 14170 | 8854 | 11243	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	7.8-6 | -7.1-6 | 2.4-6 | 7.7-6	5:27 | 15:12 | 5:54 | 7:56
be200.3.3	201;59700	201;	11187 | 22332 | 11429 | 14882	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	8.9-7 | -7.0-6 | 2.4-7 | -7.2-7	8:58 | 20:21 | 9:29 | 10:50
be200.3.4	201;59700	201;	9513 | 21265 | 9628 | 12833	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	1.1-6 | -7.1-6 | -1.7-6 | -1.3-6	7:11 | 21:43 | 6:58 | 9:59
be200.3.5	201;59700	201;	9373 | 15368 | 9370 | 12526	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-4.3-7 | -1.2-5 | -2.9-6 | -9.7-7	8:43 | 14:15 | 8:21 | 10:14
be200.3.6	201;59700	201;	8777 | 13901 | 10180 | 12967	9.9-6 | 9.8-6 | 9.9-6 | 9.9-6	-5.0-6 | -1.1-5 | -9.6-6 | -7.3-6	7:07 | 14:23 | 7:53 | 9:22
be200.3.7	201;59700	201;	12965 | 24430 | 13904 | 17684	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-2.6-6 | -8.2-6 | -3.5-6 | -3.7-6	10:52 | 22:31 | 12:29 | 14:15
be200.3.8	201;59700	201;	11102 | 18030 | 10906 | 14622	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	3.7-7 | -9.7-6 | -8.5-7 | -1.6-6	8:24 | 19:35 | 7:46 | 11:03
be200.3.9	201;59700	201;	9612 | 17226 | 9806 | 13405	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-4.3-6 | -9.9-6 | -6.6-6 | -3.1-6	9:10 | 16:18 | 8:29 | 10:11
be200.3.10	201;59700	201;	7964 | 14501 | 8851 | 10934	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	2.3-6 | -8.6-6 | -4.8-6 | 8.1-7	6:31 | 14:00 | 6:44 | 8:06
be200.8.1	201;59700	201;	11162 | 25001 | 11862 | 15840	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-3.5-6 | -7.8-6 | -4.9-6 | -5.0-6	8:32 | 23:29 | 9:12 | 11:34
be200.8.2	201;59700	201;	8392 | 14101 | 8693 | 12297	9.9-6 | 9.8-6 | 9.9-6 | 9.9-6	9.0-6 | -8.0-6 | 4.1-6 | 5.6-6	5:46 | 13:34 | 5:47 | 8:06
be200.8.3	201;59700	201;	10385 | 20301 | 10882 | 14115	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-5.2-6 | -8.5-6 | -5.8-6 | -6.0-6	9:42 | 18:05 | 9:46 | 10:56
be200.8.4	201;59700	201;	9457 | 17380 | 10001 | 14201	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	7.4-7 | -7.9-6 | 7.4-7 | 9.8-7	7:31 | 17:57 | 8:12 | 10:56
be200.8.5	201;59700	201;	10011 | 19060 | 10008 | 12977	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	3.6-6 | -7.1-6 | -3.6-7 | -4.2-7	8:18 | 17:23 | 8:28 | 10:12
be200.8.6	201;59700	201;	11144 | 28038 | 12027 | 14979	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	1.8-6 | -7.3-6 | 3.5-7 | 9.7-7	9:07 | 28:44 | 10:10 | 12:19
be200.8.7	201;59700	201;	9261 | 20201 | 9226 | 12573	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	6.9-6 | -6.3-6 | 7.2-6 | 7.2-6	8:39 | 19:05 | 7:58 | 10:04
be200.8.8	201;59700	201;	11002 | 22942 | 11331 | 15218	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-8.5-6 | -8.6-6 | -9.3-6 | -9.2-6	9:13 | 23:57 | 9:08 | 12:22
be200.8.9	201;59700	201;	9102 | 16901 | 9945 | 12465	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-2.5-6 | -9.2-6 | -5.0-6 | -4.3-6	7:20 | 16:18 | 7:38 | 8:39
be200.8.10	201;59700	201;	9137 | 16001 | 9905 | 13232	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	9.3-6 | -6.7-6 | 9.0-6 | 7.3-6	7:19 | 15:36 | 6:54 | 10:21
be250.1	251;93375	251;	13774 | 24878 | 15373 | 19553	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-2.6-6 | -1.2-5 | -4.7-6 | -4.0-6	17:50 | 38:20 | 21:43 | 24:28
be250.2	251;93375	251;	11808 | 21286 | 12138 | 16078	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	5.6-6 | -9.6-6 | 3.8-6 | 3.8-6	14:38 | 35:35 | 15:55 | 19:06
be250.3	251;93375	251;	14517 | 27463 | 16134 | 19608	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	1.4-6 | -1.3-5 | 7.5-7 | 1.0-6	19:53 | 47:55 | 19:41 | 23:42
be250.4	251;93375	251;	14715 | 28926 | 16367 | 21328	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	6.3-6 | -9.3-6 | 5.9-7 | 3.1-6	21:30 | 52:33 | 21:16 | 29:05
be250.5	251;93375	251;	11316 | 18201 | 12801 | 16164	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	5.2-6 | -1.4-5 | 1.2-6 | 1.6-6	15:56 | 26:40 | 14:47 | 18:54
be250.6	251;93375	251;	14606 | 25701 | 15956 | 21016	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-3.3-6 | -1.1-5 | -5.1-6 | -4.6-6	18:29 | 41:31 | 18:35 | 23:59
be250.7	251;93375	251;	14442 | 27701 | 17230 | 21587	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-4.8-6 | -1.0-5 | -6.4-6 | -6.5-6	19:09 | 48:12 | 26:17 | 28:05
be250.8	251;93375	251;	14305 | 24976 | 15139 | 19218	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	1.5-7 | -1.1-5 | -1.5-6 | -1.7-6	19:50 | 44:48 | 18:16 | 24:24
be250.9	251;93375	251;	10701 | 16508 | 12268 | 15170	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	9.3-7 | -1.8-5 | -2.7-6 | -9.4-7	13:57 | 26:28 | 14:48 | 17:45
be250.10	251;93375	251;	12160 | 20301 | 13176 | 15343	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	7.9-6 | -6.9-6 | 6.6-6 | 7.5-6	15:40 | 36:24 | 16:29 | 18:13

Table 3: The performance of PADMM3c, LADMM4g, PADMM4d, PADMM4d(1) on extended BIQ problems (accuracy = 10^{-5}). In the table, we have omitted the command string "ADMM" in the names of the solvers. The computation time is in the format of "hours:minutes:seconds".

			iteration	η	η_g	time
problem	$m_E; m_I$	n_s;	P3c|L4g|P4d|P4d(1)	P3c|L4g|P4d|P4d(1)	P3c|L4g|P4d|P4d(1)	P3c|L4g|P4d|P4d(1)
bqp100-1	101;14850	101;	9403 | 15720 | 9954 | 12475	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-1.1-5 | -1.2-5 | -8.4-6 | -4.0-6	1:37 | 3:28 | 1:41 | 2:03
bqp100-2	101;14850	101;	27995 | 40298 | 29477 | 37576	9.6-6 | 8.8-6 | 7.5-6 | 9.4-6	-3.8-6 | -2.4-5 | 1.9-5 | 1.9-5	4:54 | 9:19 | 5:01 | 6:23
bqp100-3	101;14850	101;	3388 | 4549 | 3637 | 3725	9.7-6 | 9.9-6 | 9.7-6 | 9.5-6	5.1-5 | -4.1-5 | -4.2-5 | -2.7-5	32 | 55 | 32 | 33
bqp100-4	101;14850	101;	3117 | 3947 | 3108 | 4047	9.4-6 | 9.9-6 | 9.9-6 | 9.9-6	5.1-5 | 5.1-5 | -6.0-5 | 4.9-5	29 | 49 | 28 | 35
bqp100-5	101;14850	101;	5994 | 8271 | 6464 | 7651	9.3-6 | 9.9-6 | 9.5-6 | 9.5-6	5.4-5 | 5.7-5 | -5.3-5 | -5.5-5	1:03 | 1:49 | 1:04 | 1:15
bqp100-6	101;14850	101;	9077 | 14471 | 10181 | 12774	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	5.2-6 | -7.7-6 | -1.0-5 | 4.8-6	1:34 | 3:11 | 1:40 | 2:06
bqp100-7	101;14850	101;	11873 | 21174 | 12881 | 16529	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-8.3-6 | -1.0-5 | -5.0-6 | -8.7-6	2:04 | 4:45 | 2:09 | 2:50
bqp100-8	101;14850	101;	2989 | 3743 | 3010 | 3742	9.5-6 | 9.2-6 | 9.5-6 | 8.8-6	2.8-6 | -4.8-6 | -8.0-6 | 3.7-6	29 | 49 | 28 | 37
bqp100-9	101;14850	101;	2752 | 3692 | 2994 | 4125	9.8-6 | 9.4-6 | 9.7-6 | 9.7-6	-5.4-5 | 4.3-5 | 5.2-5 | -4.0-5	27 | 46 | 27 | 37
bqp100-10	101;14850	101;	5304 | 7186 | 5836 | 6865	9.7-6 | 8.1-6 | 7.6-6 | 7.2-6	1.7-5 | 1.9-5 | 1.7-5 | -1.6-5	50 | 1:31 | 52 | 1:02
bqp250-1	251;93375	251;	14332 | 29301 | 14903 | 18899	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	2.1-6 | -9.8-6 | 1.6-6 | 1.3-6	19:47 | 49:11 | 20:47 | 23:03
bqp250-2	251;93375	251;	12301 | 22601 | 13322 | 17692	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-6.1-6 | -9.9-6 | -9.6-6 | -8.3-6	16:06 | 39:47 | 15:38 | 21:42
bqp250-3	251;93375	251;	15229 | 26201 | 16301 | 20920	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	8.3-6 | -1.1-5 | 7.9-6 | 6.4-6	21:15 | 42:39 | 21:56 | 25:21
bqp250-4	251;93375	251;	12303 | 22801 | 12918 | 16310	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	2.8-7 | -9.3-6 | -1.3-6 | -9.3-7	17:19 | 40:40 | 15:03 | 21:49
bqp250-5	251;93375	251;	13210 | 27801 | 14302 | 18589	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-1.1-6 | -1.0-5 | -4.7-6 | -4.6-6	17:39 | 41:46 | 17:15 | 21:05
bqp250-6	251;93375	251;	11312 | 19910 | 10823 | 14626	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	4.5-6 | -1.0-5 | -2.8-6 | 4.4-7	14:11 | 32:17 | 12:27 | 16:50
bqp250-7	251;93375	251;	13962 | 24701 | 15631 | 20411	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	6.8-6 | -1.1-5 | 5.3-6 | 5.7-6	20:45 | 40:32 | 20:42 | 23:42
bqp250-8	251;93375	251;	10601 | 16801 | 11459 | 14972	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-10.0-7 | -1.2-5 | -3.1-6 | -1.9-6	13:08 | 27:56 | 14:00 | 17:30
bqp250-9	251;93375	251;	14855 | 25470 | 16401 | 21439	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-7.3-6 | -1.1-5 | -7.9-6 | -8.7-6	23:11 | 44:17 | 23:15 | 27:09
bqp250-10	251;93375	251;	10344 | 18901 | 11268 | 13902	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	7.5-6 | -6.5-6 | 2.3-6 | 5.3-6	15:31 | 32:22 | 15:14 | 15:51
bqp500-1	501;374250	501;	17258 | 26843 | 18284 | 23591	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	3.3-6 | -1.4-5 | -5.2-6 | -5.1-6	1:57:15 | 3:55:29 | 1:58:50 | 2:26:39
bqp500-2	501;374250	501;	18453 | 36844 | 20364 | 25027	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	5.4-6 | -9.4-6 | 2.1-6 | 4.5-6	2:06:15 | 5:38:45 | 2:00:28 | 2:25:11
bqp500-3	501;374250	501;	19161 | 31404 | 19904 | 25469	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	9.7-6 | -1.8-5 | 7.8-6 | 8.7-6	1:58:24 | 4:50:34 | 1:42:24 | 2:09:39
bqp500-4	501;374250	501;	16801 | 32116 | 18402 | 22449	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	1.1-5 | -1.1-5 | 8.1-6 | 7.9-6	1:34:01 | 3:57:05 | 1:32:31 | 1:52:18
bqp500-5	501;374250	501;	17522 | 30985 | 18789 | 23397	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	3.4-6 | -1.0-5 | -1.9-6 | 5.2-7	1:57:31 | 4:54:17 | 2:01:25 | 2:27:00
bqp500-6	501;374250	501;	17826 | 31655 | 19213 | 24230	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-1.1-6 | -9.4-6 | -2.3-6 | -2.8-6	1:47:20 | 4:40:17 | 1:39:56 | 2:14:33
bqp500-7	501;374250	501;	18004 | 29439 | 18232 | 23837	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	2.8-6 | -1.3-5 | 3.1-8 | -3.1-7	1:58:09 | 3:57:05 | 1:35:35 | 1:58:49
bqp500-8	501;374250	501;	18685 | 30701 | 20343 | 50000	9.9-6 | 9.9-6 | 9.9-6 | 1.8-5	2.8-6 | -1.1-5 | 1.3-6 | -1.8-5	2:05:47 | 4:26:00 | 2:08:58 | 4:59:12
bqp500-9	501;374250	501;	17648 | 27801 | 18504 | 23491	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	2.3-6 | -1.5-5 | 1.3-6 | -1.4-6	1:47:18 | 3:52:54 | 1:40:11 | 1:57:46
bqp500-10	501;374250	501;	18128 | 34147 | 19935 | 25577	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	7.9-6 | -1.1-5 | 5.9-6 | 4.8-6	1:47:23 | 4:11:38 | 1:42:53 | 2:16:53
gka8a	101;14850	101;	2699 | 3593 | 2680 | 4253	9.7-6 | 9.6-6 | 9.0-6 | 9.9-6	-4.4-5 | -4.0-5 | 3.3-5 | -3.8-5	24 | 41 | 22 | 34
gka9b	101;14850	101;	3217 | 1269 | 1029 | 1198	8.9-6 | 7.3-6 | 8.6-6 | 9.3-6	7.1-4 | -7.6-5 | -1.7-4 | 1.5-4	30 | 15 | 09 | 10
gka10b	126;23250	126;	4990 | 1751 | 1078 | 1352	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-7.9-4 | -4.6-4 | -5.9-4 | -5.0-4	1:13 | 35 | 16 | 20
gka7c	101;14850	101;	2967 | 4025 | 3162 | 4230	9.5-6 | 9.9-6 | 9.5-6 | 9.9-6	-4.5-5 | 4.7-5 | 4.3-5 | -4.6-5	27 | 49 | 28 | 37
gka1d	101;14850	101;	2895 | 4031 | 2939 | 3706	7.3-6 | 9.9-6 | 9.3-6 | 9.3-6	-5.0-6 | -1.7-5 | 1.3-5 | 4.2-6	29 | 52 | 28 | 35
gka2d	101;14850	101;	4637 | 8701 | 4676 | 6050	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-3.6-6 | -1.1-5 | -8.2-6 | -4.5-6	49 | 1:55 | 46 | 1:00
gka3d	101;14850	101;	8844 | 14501 | 9164 | 12596	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-2.8-6 | -9.1-6 | -3.4-6 | -3.6-6	1:31 | 3:12 | 1:31 | 2:05
gka4d	101;14850	101;	6213 | 16001 | 6707 | 8728	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-6.0-7 | -8.4-6 | -2.4-6 | 2.4-8	1:05 | 3:36 | 1:08 | 1:30
gka5d	101;14850	101;	7580 | 13113 | 7564 | 9479	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-4.4-6 | -8.5-6 | -5.6-6 | -6.2-6	1:18 | 2:56 | 1:14 | 1:33
gka6d	101;14850	101;	7650 | 18301 | 8993 | 11661	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-3.9-6 | -1.0-5 | -3.6-6 | -3.1-6	1:21 | 4:06 | 1:32 | 1:58

Table 3: The performance of PADMM3c, LADMM4g, PADMM4d, PADMM4d(1) on extended BIQ problems (accuracy = 10^{-5}). In the table, we have omitted the command string "ADMM" in the names of the solvers. The computation time is in the format of "hours:minutes:seconds".

			iteration	η	η_g	time
problem	$m_E; m_I$	n_s;	P3c|L4g|P4d|P4d(1)	P3c|L4g|P4d|P4d(1)	P3c|L4g|P4d|P4d(1)	P3c|L4g|P4d|P4d(1)
gka7d	101;14850	101;	6115 | 13801 | 7162 | 9105	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-2.3-6 | -8.2-6 | -7.3-7 | 5.0-7	1:02 | 3:04 | 1:10 | 1:31
gka8d	101;14850	101;	8058 | 19302 | 9023 | 11712	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-2.1-6 | -8.2-6 | -2.4-6 | -2.2-6	1:25 | 4:19 | 1:32 | 1:59
gka9d	101;14850	101;	6317 | 13502 | 7186 | 9201	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-2.1-6 | -1.1-5 | -3.7-6 | -4.5-6	1:04 | 3:01 | 1:10 | 1:31
gka10d	101;14850	101;	5711 | 15102 | 5904 | 7676	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	2.1-7 | -9.6-6 | -4.5-6 | -8.0-7	1:05 | 3:24 | 1:05 | 1:15
gka1e	201;59700	201;	13605 | 34550 | 15348 | 19616	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-7.2-6 | -1.2-5 | -7.5-6 | -7.7-6	10:15 | 31:16 | 11:27 | 14:09
gka2e	201;59700	201;	9104 | 15606 | 10010 | 12613	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-4.8-6 | -8.6-6 | -7.3-6 | -6.4-6	7:22 | 13:47 | 9:00 | 9:58
gka3e	201;59700	201;	10503 | 18001 | 10402 | 13767	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	-5.6-7 | -7.9-6 | -2.8-6 | -2.3-6	7:52 | 17:59 | 8:32 | 10:52
gka4e	201;59700	201;	10713 | 21201 | 11413 | 14151	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	5.7-6 | -8.8-6 | 1.5-6 | 5.2-7	9:10 | 19:17 | 8:27 | 11:23
gka5e	201;59700	201;	9506 | 17470 | 9806 | 13201	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	4.7-6 | -7.4-6 | 1.8-6 | -7.5-8	7:04 | 17:57 | 6:55 | 9:30
gka1f	501;374250	501;	16313 | 27102 | 17074 | 21619	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	8.8-6 | -9.9-6 | -2.6-7 | 1.4-6	1:36:46 | 3:50:26 | 1:51:22 | 2:03:09
gka2f	501;374250	501;	18281 | 29792 | 19502 | 23907	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	4.7-6 | -1.1-5 | -1.9-6 | 2.7-7	1:55:57 | 4:07:38 | 1:44:35 | 2:20:24
gka3f	501;374250	501;	17311 | 29801 | 17992 | 24553	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	7.2-6 | -9.9-6 | 7.7-6 | -2.0-7	2:04:10 | 4:35:38 | 1:55:23 | 2:12:30
gka4f	501;374250	501;	16714 | 27846 | 17360 | 21744	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	8.0-6 | -1.2-5 | 8.3-6 | 4.7-6	1:32:58 | 3:28:28 | 1:28:34 | 1:48:07
gka5f	501;374250	501;	17647 | 29644 | 18157 | 23407	9.9-6 | 9.9-6 | 9.9-6 | 9.9-6	2.0-6 | -1.0-5 | 3.1-6 | -1.4-6	1:56:52 | 4:05:27 | 1:42:52 | 2:12:16