

Contemporary Computer Shogi (May 2013)

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Computer shogi was first developed by the author and a research group in late 1974. It has been steadily improved by researchers and commercial programmers using game tree making and pruning methods, opening and middle game databases, and feedback from research into tsume-shogi (mating) problems. It has now reached about six-dan strength. In this paper, the author discusses contemporary computer shogi, especially how the programs behaved at the 23rd World Computer Shogi Championship, where 48 teams applied and 39 teams entered, in May 2013.

0. Introduction

The 23rd World Computer Shogi Championship was held May 3-5, 2013. Bonanza won the tournament. This was the second championship win for Bonanza, which won the championship in 2006. The runner-up was ponanza. Third was the former champion, GPS Shogi. Fourth was Gekisashi, fifth was NineDayFever, a newcomer, sixth was Tsutsukana, seventh was Shuso, and

eighth was YSS, which was eighth or better for its all (22) participation to the championship.

Takuya Nagase, a professional 5-dan and Rookie of the year in 2012, from the Nihon Shogi Renmei, the authorities of professional shogi, together with other professionals who watched the championship, said that the top finalists had already reached the professional level.

Table 1. Results of the World Computer Shogi Championships

No.	Date	Number of Participants	Winner	Second	Third
1	1990.12.2	6	Eisei Meijin	Kakinoki	Morita
2	1991.12.1	9	Morita	Kiwame	Eisei Meijin
3	1992.12.6	10	Kiwame	Kakinoki	Morita
4	1993.12.5	14	Kiwame	Kakinoki	Morita
5	1994.12.4	22	Kiwame	Morita	YSS
6	1996.1.20-21	25	Kanazawa	Kakinoki	Morita
7	1997.2.8-9	33	YSS	Kanazawa	Kakinoki
8	1998.2.12-13	35	IS	Kanazawa	Shotest
9	1999.3.18-19	40	Kanazawa	YSS	Shotest
10	2000.3-8-10	45	IS	YSS	Kawabata
11	2001.3.10-12	55	IS	Kanazawa	KCC
12	2002.5.2-5	51	Gekisashi	IS	KCC
13	2003.5.3-5	45	IS	YSS	Gekisashi
14	2004.5.2-4	43	YSS	Gekisashi	IS
15	2005.5.3-5	39	Gekisashi	KCC	IS
16	2006.5.3-5	43	Bonanza	YSS	KCC
17	2007.5.3-5	40	YSS	Tanase	Gekisashi
18	2008.5.3-5	40	Gekisashi	Tanase	Bonanza
19	2009.5.3-5	42	GPS	Ootsuki	Monju
20	2010.5.2-4	43	Gekisashi	Shuso	GPS
21	2011.5.3.-5	37	Bonkras	Bonanza	Shuso
22	2012.5.3-5	42	GPS	Puella alpha	Tsutsukana
23	2013.5.3-5	40	Bonanza	ponanza	GPS

Table 2. The Results of the First Preliminary Contest

No.	Program Name	1	2	3	4	5	6	7	Pt	SOS	SB	MD
*1	NineDayFever	3+	13+	9+	2+	4+	6+	7+	7.0	31.0	31.0	22.0
*2	Apery	24+	10+	8+	1-	5+	3+	4+	6.0	30.0	23.0	18.0
*3	Kakinoki Shogi	1-	18+	11+	14+	7+	2-	8+	5.0	31.0	18.0	11.0
*4	N4	5+	14+	13+	7+	1-	15+	2-	5.0	31.0	18.0	10.0
*5	AWAKE	4-	19+	18+	17+	2-	13+	6+	5.0	26.5	15.5	9.0
*6	Hinemosu Notari	15+	17-	10+	12+	8+	1-	5-	4.0	30.0	15.0	8.0
*7	Mumyo4	16+	9+	21+	4-	3-	12+	1-	4.0	30.0	13.0	7.0
*8	Himawari	12+	20+	2-	15+	6-	9+	3-	4.0	28.5	13.5	7.0
9	Yamada Shogi	11+	7-	1-	19+	10+	8-	18+	4.0	28.5	13.5	7.0
10	Garyu	23+	2-	6-	16+	9-	22+	14+	4.0	23.0	9.0	5.0
11	GodWhale	9-	16-	3-	24+	20+	17+	13+	4.0	20.5	8.5	5.5
12	Qinoa Shogi	8-	21+	24+	6-	17+	7-	15+	4.0	20.0	8.0	5.0
13	sawanyan	18+	1-	4-	20+	21+	5-	11-	3.0	28.5	7.5	2.5
14	scherzo	19+	4-	17+	3-	15-	16+	10-	3.0	25.5	8.5	3.0
15	GAsho!!!!!!	6-	22+	23+	8-	14+	4-	12-	3.0	23.0	6.0	2.0
16	Sessa	7-	11+	20-	10-	19+	14-	21+	3.0	22.0	8.5	2.5
17	Ym Shogi	22+	6+	14-	5-	12-	11-	24+	3.0	22.0	6.0	2.0
18	Mattari Yuchan	13-	3-	5-	22+	23+	21+	9-	3.0	22.0	5.0	2.0
19	Narikin Shogi	14-	5-	22+	9-	16-	23+	20=	2.5	20.5	3.0	0.0
20	HIT Shogi	21-	8-	16+	13-	11-	24+	19=	2.5	18.5	3.0	0.0
21	Komaasobi	20+	12-	7-	23+	13-	18-	16-	2.0	20.5	3.5	0.0
22	Hakusa Shogi	17-	15-	19-	18-	24+	10-	23+	2.0	16.5	1.0	0.0
23	MechaLady Shogi	10-	24+	15-	21-	18-	19-	22-	1.0	16.5	0.0	0.0
24	Shibaura Jr.	2-	23-	12-	11-	22-	20-	17-	0.0	22.5	0.0	0.0

*NineDayFever, Apery, Kakinoki Shogi, N4, AWAKE, Hinemosu Notari, Mumyo4 and Himawari qualify for the second preliminary contest.

Here, the author discusses contemporary computer shogi and computer shogi in the near future through the game records of the 23rd World Computer Shogi Championship.

1. The 23rd World Computer Shogi Championship

The 23rd World Computer Shogi Championship was held at International Conference Center, Waseda University, Shinjuku-Ku, Tokyo, Japan, May 3-5, 2013. The championship was managed by the Computer Shogi Association (CSA), co-managed by Game Sciences Laboratory, Waseda University (GSL-WU) and Cognitive Science and Entertainment Research Station, University of Electro-Communication (CERS-UEC), with special help from the Nihon Shogi Renmei (the Japan Shogi Association, JSA), supported by the Ministry of Internal Affairs and Communications (MIC), the Ministry of Education, Culture, Sports, Science and Technology –Japan (MEXT), the Ministry of Economics, Trade and Industry (METI), the Information Processing Society of Japan (IPSJ), the Japan Information Technology Services Industry Association (JISA), Waseda University

and University of Electro-Communication and help by Fujitsu Ltd. For this championship, 48 teams applied and 39 (plus one invited) teams entered the tournament.

As mentioned above, the tournament lasted for three days. The first and second days were for the preliminary contests and the third day for the final. Seven newcomers entered, although eleven (11) applied. No teams came back, although two returnees applied. However, Puella alpha, the former runner-up, did not apply.

There were two prizes sponsored by the CERS-UEC. NineDayFever got the newcomer prize because it reached the highest result among first and second participants, and GodWhale got the good idea prize because it used cloud computing on the PC's of the viewers.

There was a foreign team in the tournament: Mumyo4 from the USA.

Professional shogi players Takuya Nagase, Tadao Kitajima (6-dan), Hiroyuki Iida (6-dan), who is also a professor of the Japan Advanced Institute of Science and Technology, and Kiyokazu Katsumata (6-dan), together with lady professionals Sayuri Takebe (women's 3-dan) and

Table 3-1. Second Preliminary Contest (after the 8th round)

Note: SOS, SB, and MD are calculated just after the 8th round.

No.	Program Name	1	2	3	4	5	6	7	8	9	Pt	SOS	SB	MD
*1	Gekisashi	11+	4+	7+	8+	3+	2-	6+	5+	15	7.0	43.0	36.0	25.0
*2	GPS Shogi	23+	16+	6+	3-	5+	1+	7+	4+	8	7.0	38.0	31.0	23.0
*3	ponanza	21+	10+	17+	2+	1-	7+	4+	9+	5	7.0	38.0	31.0	21.0
4	Bonanza	5+	1-	10+	17+	8+	11+	3-	2-	7	5.0	42.0	21.0	13.0
5	NineDayFever	4-	11+	18+	12+	2-	10+	8+	1-	3	5.0	39.0	20.0	12.0
6	YSS	15+	12+	2-	20+	7-	9+	1-	11+	14	5.0	38.0	19.0	12.0
7	Shuso	13+	24+	1-	9+	6+	3-	2-	19+	4	5.0	38.0	17.0	11.0
8	Tsutsukana	20+	19+	22+	1-	4-	12+	5-	10+	2	5.0	33.0	16.0	10.0
9	Apery	12-	15+	14+	7-	17+	6-	16+	1-	13	4.0	35.0	14.0	7.0
10	Dragon's Egg	18+	3-	4-	22+	16+	5-	13+	8-	17	4.0	34.0	12.0	6.0
11	N4	1-	5-	13+	21+	24+	4-	17+	6-	12	4.0	33.0	11.0	6.0
12	Blunder	9+	6-	19+	5-	13+	8-	14-	24+	11	4.0	31.0	12.0	7.0
13	AWAKE	7-	22+	11-	14+	12-	15+	10-	18+	9	4.0	30.0	13.0	7.0
14	Otsuki Shogi	19-	20+	9-	13-	22+	17-	12+	16+	6	4.0	26.0	12.0	6.0
15	Kakinoki Shogi	6-	9-	23+	16-	18+	13-	24+	17+	1	4.0	24.0	8.0	4.0

Mio Watanabe (women's 1-kyu) commented on a number of games in the finals to the audience at the tournament and declared that the top programs of the finalists had already reached professional level. The strength of the top programs has continued to increase, so that if that continues, the top program will reach the top professional level in about five years.

1.1. First Preliminary Contest

The first preliminary contest was held on the first day. There were 7 Swiss-style games. The top 8 programs joined the second preliminary contest. Twenty-four (24) programs entered the first preliminary contest.

The expected candidates to proceed to the second stage were Kakinoki, GAsho, Apery, AWAKE, Qinoa, and Newcomers, NineDayFever, N4 and Shibaura Jr.

As shown in Table 2, NineDayFever, 7 wins and no losses, and Apery, 6 wins and 1 loss, proceeded to the second day. Other programs which qualified were Kakinoki, N4, AWAKE, Hinemosu Notari (5 wins 2 losses), Mumyo4 from the USA, and Himawari (4 wins 3 losses). Yamada, Garyu, GodWhale and Qinoa won four games but did not proceed to the second day because the SOSs of those programs were shorter.

1.2. Second Preliminary Contest

The second preliminary contest was held on the second day. There were 9 Swiss-style games.

The top 8 programs proceeded to the third day of competition.

There were 16 seeded and 8 qualifying programs in the second preliminary contest. The candidates expected to proceed to the final were former finalists, GPS, Tsutsukana, ponanza, Shuso, Gekisashi, YSS and Blunder, and Bonanza, the former runner-up to the final. Qualifying programs NineDayFever and Apery followed.

After the eighth round, Gekisashi, GPS and ponanza had earned seven points and had already qualified. Bonanza, NineDayFever, YSS, Shuso and Tsutsukana earned five points and were almost sure to qualify (Table 3-1).

The 16th and upper programs had each been seeded for the second contest. Qualifying programs, NineDayFever, Apery, N4 and AWAKE had been seeded for the second contest.

1.3. The Final

The final was held on the third day. There was a round robin of 8 programs with each program playing each other once.

NineDayFever was a newcomer and not only qualified for the second preliminary contest but also qualified for the final. This was the sixth case where a newcomer advanced to the final, such programs were Bingo Shogi in the 13th, Bonanza in the 16th and won the championship, Tanase Shogi in the 17th, Monju in the 19th and Shibaura Shogi in the 20th. The candidates for victory were Gekisashi, ponanza and GPS.

Table 3-2. The Results of the Second Preliminary Contest

No.	Program Name	1	2	3	4	5	6	7	8	9	Pt	SOS	SB	MD
*1	Gekisashi	13+	4+	7+	5+	2+	3-	8+	6+	17+	8.0	50.0	43.0	31.0
*2	ponanza	19+	12+	14+	3+	1-	7+	4+	9+	6+	8.0	48.0	40.0	29.0
*3	GPS Shogi	23+	16+	8+	2-	6+	1+	7+	4+	5-	7.0	48.0	34.0	25.0
*4	Bonanza	6+	1-	12+	14+	5+	13+	2-	3-	7+	6.0	51.0	28.0	18.0
*5	Tsutsukana	21+	18+	22+	1-	4-	10+	6-	12+	3+	6.0	44.0	25.0	16.0
*6	NineDayFever	4-	13+	20+	10+	3-	12+	5+	1-	2-	5.0	52.0	23.0	13.0
*7	Shuso	15+	24+	1-	9+	8+	2-	3-	18+	4-	5.0	48.0	19.0	13.0
*8	YSS	17+	10+	3-	21+	7-	9+	1-	13+	11-	5.0	46.0	21.0	13.0
9	Apery	10-	17+	11+	7-	14+	8-	16+	1-	15+	5.0	44.0	21.0	12.0
10	Blunder	9+	8-	18+	6-	15+	5-	11-	24+	13+	5.0	39.0	18.0	12.0
11	Otsuki Shogi	18-	21+	9-	15-	22+	14-	10+	16+	8+	5.0	36.0	19.0	12.0
12	Dragon's Egg	20+	2-	4-	22+	16+	6-	15+	5-	14-	4.0	43.0	14.0	8.0
13	N4	1-	6-	15+	19+	24+	4-	14+	8-	10-	4.0	42.0	13.0	8.0
14	Selene	16+	23+	2-	4-	9-	11+	13-	17-	12+	4.0	41.0	14.0	8.0
15	AWAKE	7-	22+	13-	11+	10-	17+	12-	20+	9-	4.0	38.0	15.0	8.0
16	Sunfish	14-	3-	19+	17+	12-	21+	9-	11-	22+	4.0	38.0	13.0	7.0
17	Kakinoki Shogi	8-	9-	23+	16-	20+	15-	24+	14+	1-	4.0	36.0	10.0	5.0
18	Kiri	11+	5-	10-	20-	21-	23+	19+	7-	24+	4.0	34.0	11.0	5.0
19	Hinemosu Notari	2-	20+	16-	13-	23-	24+	18-	22+	21+	4.0	31.0	10.0	5.0
20	Nara Shogi	12-	19-	6-	18+	17-	22+	21+	15-	23+	4.0	31.0	10.0	5.0
21	Mumyo4	5-	11-	24+	8-	18+	16-	20-	23+	19-	3.0	34.0	6.0	1.0
22	Kuma Shogi	24+	15-	5-	12-	11-	20-	23+	19-	16-	2.0	33.0	2.0	0.0
23	Himawari	3-	14-	17-	24-	19+	18-	22-	21-	20-	1.0	33.0	4.0	0.0
24	Nanoha	22-	7-	21-	23+	13-	19-	17-	10-	18-	1.0	32.0	1.0	0.0

*Gekisashi, ponanza, GPS Shogi, Bonanza, Tsutsukana, NineDayFever, Shuso and YSS qualify for the final.

NineDayFever beat Gekisashi in the second round and beat ponanza in the third round. These gave the audience a surprise. After the third round, only Bonanza and GPS won three games in a row. GPS beat NineDayFever in the fourth round while ponanza beat Bonanza. This meant that only GPS won four times after the fourth round. Gekisashi beat GPS in the fifth round while ponanza beat Tsutsukana and Shuso beat Bonanza. Bonanza beat Gekisashi and GPS beat ponanza in the sixth round while Shuso beat NineDayFever. Only GPS earned five

points after the sixth round but the winner had not been decided. If GPS would beat Bonanza in the last round, GPS won the championship, but if it would lose, Bonanza or ponanza won the championship. Ponanza would win the championship if ponanza, Bonanza, Tsutsukana and Shuso won in the last round. Actually, ponanza, Bonanza and Tsutsukana won but 8th program YSS beat 7th program Shuso, which was only one win for YSS, in the last round, Bonanza won the championship. GPS almost beat Bonanza, but lost because of running out of time.

Table 4. The Results of the Final

No.	Program Name	1	2	3	4	5	6	7	Pt	SB	MD
1	Bonanza	5+	8+	6+	2-	7-	4+	3+	5.0	16.0	10.0
2	ponanza	8+	7+	5-	1+	6+	3-	4+	5.0	15.0	9.0
3	GPS Shogi	7+	6+	8+	5+	4-	2+	1-	5.0	14.0	8.0
4	Gekisashi	6+	5-	7+	8+	3+	1-	2-	4.0	11.0	5.0
5	NineDayFever	1-	4+	2+	3-	8+	7-	6-	3.0	10.0	4.0
6	Tsutsukana	4-	3-	1-	7+	2-	8+	5+	3.0	6.0	2.0
7	Shuso	3-	2-	4-	6-	1+	5+	8-	2.0	8.0	0.0
8	YSS	2-	1-	3-	4-	5-	6-	7+	1.0	2.0	0.0

Table 5 Access Information

No. of Live Top Page accesses		No. of Unique IP's	
First Day	22,789	(13,788)	10,482 (4,302)
Second Day	35,482	(27,161)	16,751 (6,695)
Third Day	28,334	(28,951)	18,130 (8,166)
Next Day	5,478	(7,883)	5,942 (6,797)
No. of blog accesses		No. of blog visitors	
Previous Day	579	(225)	366 (148)
First Day	17,358	(8,379)	5,441 (2,104)
Second Day	43,974	(18,593)	8,436 (3,882)
Third Day	63,080	(25,123)	18,868 (4,941)
Next Day	22,927	(18,113)	11,949 (11,009)
No. of CSA top page accesses		No. of Ustream accesses	
First Day	4,652	(3,546)	
Second Day	5,137	(4,709)	1,400 ~ 1,500
Third Day	7,040	(6,921)	2,400 ~ 2,500
Next Day	5,100	(3,521)	

In the parenthesis: accesses at the 22nd WCSC

The results of the 23rd World Computer Championship were Bonanza, the winner (5 points), ponanza, the runner-up (5 points), GPS, third (5 points), Gekisashi, fourth (4 points), NineDayFever, fifth (3 points), Tsutsukana, sixth (3 points), Shuso, seventh (2 points) and YSS, eighth (1 point). The finalists all performed very well (Table 4). Even top three programs lost twice while all programs earned at least one point. This meant that the strength of top programs were very close.

There is a game record from the final (GPS versus Bonanza) in the appendix.

The number of accesses to live top page and unique IP's, the number of blog accesses and number of visitors, number of accesses to CSA top page and number of Ustream accesses are on Table 5.

2. The Den-O-Sen

The first Den-O-Sen was held on January 14, 2012. This was the match between retired professional late Kunio Yonenaga versus Bonkras (first player). This match was managed by the JSA, DWANGO Co., Ltd. and CHUOKORON-SHINSHA. Inc. Total time spent was three hours plus 60 seconds byoyomi for both players. Bonkras won the match.

The second Den-O-Sen was five games match and held on Saturdays March 23 (Koru Abe (4 dan, won) vs. Shuso (second player)), March 30 (Shin'ichi Sato (4 dan) vs. ponanza (first player,

won)), April 6 (Kohei Funae (5 dan) vs. Tsutsukana (second player, won)), April 13 (Yasuaki Tsukada (9 dan) vs. Puella alpha (first player), draw because of Jishogi) and April 20 (Hiroyuki Miura (8 dan) vs. GPS (second player, won).

It was a big surprise that A-class professional Miura has been beaten. The author does not think that computer softwares beat professionals but think that they are very close strength to professionals.

3. Computer Shogi in the Near Future

Professional players who watched the WCSC declared that the top programs had already reached professional level. Takuya Nagase told that computer shogi had many weaknesses so that it might get stronger. The author thinks that computer shogi may help professionals study Josekis, etc.

4. Conclusion and Acknowledgements

Here, we have considered contemporary computer shogi, especially how competitors performed at the 23rd World Computer Shogi Championship. The author is grateful to GSL-WU and CERS-UEC for the co-management, the JSA for its kind help, to the MIC, the MEXT, the METI, the IPSJ, the JISA, Waseda University and the University of Electro-Communications for their support, and to Fujitsu Limited for its help at the championships. The author is also grateful to the members of the CSA for their kind help.



**Kunihiro Hoki, the winner, Bonanza's programmer,
After winning the 23rd championship**



**Issei Yamamoto, the runner-up, onanza's
programmer**



**The Team GPS, Daigo Moriwaki, Shogo Takeuchi,
Tomoyuki Kaneko and Tetsuro Tanaka
(from left to right) and Tadao Kitajima 6-dan**



**Hiroshi Yamashita (left, YSS's programmer
YSS had been 8th or better for 22 championships
in row) and Akira Takeuchi (Shuso's programmer)**

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Appendix The game records of GPS versus Bonanza in the final

Final of the 23rd World Computer Shogi Championship, May 5, 2013
Black: Bonanza
White: GPS Shogi

- 1. P7g-7f 2. P8c-8d 3. S7i-6h 4. P3c-3d 5. S6h-7g 6. S7a-6b
- 7. S3i-4h 8. P5c-5d 9. P5g-5f 10. S3a-4b 11. G6i-7h 12. G4a-3b
- 13. K5i-6i 14. K5a-4a 15. G4i-5h 16. G6a-5b 17. P6g-6f 18. S4b-3c
- 19. B8h-7i 20. B2b-3a 21. P3g-3f 22. P4c-4d 23. S4h-3g 24. B3a-6d
- 25. G5h-6g 26. P7c-7d 27. B7i-6h 28. G5b-4c 29. K6i-7i 30. K4a-3a
- 31. K7i-8h 32. K3a-2b 33. S3g-4f 34. S6b-5c 35. N2i-3g 36. P9c-9d
- 37. P1g-1f 38. P1c-1d 39. P2g-2f 40. P9d-9e 41. R2h-3h 42. S3c-2d
- 43. L1i-1h 44. P8d-8e 45. P2f-2e 46. S2d-1c 47. R3h-5h 48. B6d-7c
- 49. P5f-5e 50. P5dx5e 51. S4fx5e 52. P*5d 53. S5e-4f 54. P6c-6d
- 55. R5h-2h 56. B7c-8d 57. S4f-5g 58. P5d-5e 59. R2h-5h 60. R8b-5b
- 61. P*5f 62. N8a-7c 63. P5fx5e 64. P6d-6e 65. S5g-5f 66. Px6f
- 67. Sx6f 68. P*6e 69. S6f-7g 70. B8d-3i+ 71. B6h-4f 72. S5c-6d
- 73. R5h-6h 74. R5b-9b 75. L9i-9h 76. P7d-7e 77. P7fx7e 78. +B3ix7e
- 79. K8h-9i 80. +B7e-7d 81. S7g-8h 82. P8e-8f 83. P8gx8f 84. P9e-9f
- 85. P9gx9f 86. R9b-8b 87. G6g-7f 88. L9ax9f 89. P*9g 90. S6d-7e
- 91. P*7g 92. P6e-6f 93. P*6e 94. S7ex7f 95. P7gx7f 96. N7cx6e
- 97. R6hx6f 98. P*7g 99. N8ix7g 100. N6ex7g+ 101. G7fx7g 102. +B7dx5f
- 103. R6fx5f 104. N*6e 105. B*8g 106. N6ex7g= 107. S8hx7g 108. S*6g
- 109. R5f-5i 110. G*7h 111. S*8h 112. P*7e 113. B8gx7h 114. S6gx7h+
- 115. G*6h 116. +S7hx6h 117. S7gx6h 118. P*6g 119. S6hx6g 120. L9fx9g+
- 121. L9hx9g 122. P*8g 123. S8hx8g 124. B*7g 125. S*8h 126. B7gx5i+
- 127. L*8i 128. G*7g 129. P1f-1e 130. R*3h 131. P*6h 132. G7gx8h
- 133. L8ix8h 134. R3hx1h+ 135. G*8i 136. P7ex7f 137. P*7h 138. +B5ix6h
- 139. P1ex1d 140. S1cx1d 141. S6gx7f 142. P*9f 143. L9gx9f 144. S*5g
- 145. P*6i 146. S5gx4f+ 147. P6ix6h 148. +S4fx3g 149. P*9g 150. L*7a
- 151. P*1b 152. L1ax1b 153. P5e-5d 154. L7ax7f 155. P5d-5c+156. G4cx5c
- 157. P*1c 158. L1bx1c 159. P*1e 160. S1dx1e 161. P*1d 162. L1cx1d
- 163. P*5d 164. G5cx5d 165. S8gx7f 166. +R1h-1i 167. S7f-8g 168. B*6e
- 169. N*7i 170. P*7g 171. B*9h 172. N*7e 173. L*7f 174. N7ex8g+
- 175. B9hx8g 176. P7gx7h+ 177. B8gx7h 178. B6ex7f 179. N7i-8g 180. L*7g
- 181. B7hx3d(Fig. A) 182. P*9h 183. K9ix9h 184. B7fx8g= 185. K9hx8g 186. N*7e
- 187. K8g-9h 188. S*8g 189. L8hx8g 190. N7ex8g+ 191. K9hx8g 192. +R1ix8i
- 193. B3dx8i 194. S*7h 195. B8ix7h 196. G*7e 197. N*3d 198. K2b-1a
- 199. S*2b 200. G3bx2b 201. N3dx2b+202. R8bx2b 203. B7h-6g 204. S*7h
- 205. B6gx7h 206. L7gx7h+ 207. R*1c 208. N*1b 209. R1cx1b+210. R2bx1b
- 211. B*3c 212. B*2b 213. K8gx7h 214. L*7f 215. P*7g 216. L7fx7g+
- 217. K7hx7g 218. P*7f 219. K7g-8h 220. P*8g 221. K8h-7h 222. B2bx3c
- 223. G*2b 224. B3cx2b 225. S*4h 226. +S3gx4h 227. S*7g 228. P8g-8h+
- 229. S7gx8h 230. S1e-1f 231. N*6i(Fig. B) time-up



Professional players. Iida 6dan, Watanabe women's 1kyu, Takebe women's 3dan, Katsumata 6dan and Nagase 5dan (from left to right)



The commentators Nagase 5 dan and Takebe women's 3dan and the audience



Fig.A 181. B7h x 3d GPS could win but did not.



Fig. B. 231. N*6. After this move, GPS's time has gone.

