THE 17TH CSA WORLD COMPUTER SHOGI CHAMPIONSHIP

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1. Introduction

The 2007 World Computer Shogi Championship had two major themes. First, it would be very interesting to see how World Champion Bonanza would do in its second year of participation. In March, Bonanza had played a game against one of the best human players Akira Watanabe and lost a close game. Other results also showed that last year's title was not just the result of some lucky breaks (although they definitely helped!). The learning mechanism that Hoki used to balance the many pattern based features in the evaluation function of Bonanza is currently under investigation by many shogi programmers.

The second theme was the return of Tanase, the main programmer of former World Champion IS Shogi. His new program (after long contemplation named "Tanase Shogi") was not ready to play in the 2006 tournament, but would participate this time. It was not expected to win the tournament right away with strong opposition like Bonanza, YSS and Gekisashi present, but it was definitely considered a favorite to reach the final round of eight programs.

2. The First Preliminary Stage

This year all programs were required to have the ability to connect to a central LAN server and send moves to and receive moves from this server. Al that was needed was to plug into a nearby LAN socket and the games could be started between any two computers connected to the server. No more lumbering around of equipment and even more importantly, it was now possible to automatically show all ongoing games in real-time on the Internet.

This year my program Spear also had to play in the first preliminary round, after doing quite badly in the 2006 tournament. I had completely rewritten the program after this debacle, changing to a much faster and simpler program using bitboards. Even though there were still many things that I couldn't finish in time (for example, parallelization), Spear was much more robust than in 2006 and I was confident that I would make it to the second preliminary stage. Although there were some scary moments against the programs My Move and Tomi, in the end Spear qualified comfortably, losing only one game: against Tanase Shogi. Tanase Shogi won all seven games, but looked shaky against Tomi, so Tanase announced that there would be another all-nighter for him to make his program ready for the second day. The other programs that qualified were Tomi, My Move, Ayamari Shogi (all with 5 points), God Shogi, Misaki, Mattari-Yuuchan and Auau Shogi (all with 4 points).

No.	Name Program	1	2	3	4	5	6	7	Pt	SOS	SB	MD
*1	Tanase Shogi	21+	18+	3+	4+	2+	7+	8+	7.0	27.0	27.0	20.0
*2	Spear	5+	14+	13+	6+	1-	4+	3+	6.0	32.0	25.0	17.0
*3	Tomi	8+	7+	1-	12+	10+	9+	2-	5.0	32.5	19.5	12.0
*4	My Move	14+	15+	9+	1-	13+	2-	11+	5.0	29.5	16.5	9.5
*5	Ayamari Shogi	2-	6-	17+	15+	11+	13+	7+	5.0	26.5	16.5	9.5
*6	God Shogi	15+	5+	11-	2-	12+	8-	16+	4.0	28.0	14.5	6.5
*7	Misaki	20+	3-	12+	22+	8+	1-	5-	4.0	26.5	9.5	5.0
*8	Mattari-Yuuchan	3-	20+	21+	11+	7-	6+	1-	4.0	26.0	10.0	5.0
*9	Auau Shogi	18+	21+	4-	13-	14+	3-	15+	4.0	22.0	9.0	5.0
10	Narikin Shogi	22=	11=	20=	16+	3-	12=	13+	4.0	20.0	6.0	0.0
11	Yamada Shogi	16+	10=	6+	8-	5-	19+	4-	3.5	27.0	9.0	3.0
12	Kamepyon	19+	17+	7-	3-	6-	10=	18+	3.5	24.0	7.0	2.0
13	Oki	17+	19+	2-	9+	4-	5-	10-	3.0	29.0	9.0	3.0
14	Ayaka	4-	2-	18+	19+	9-	16-	20+	3.0	23.5	5.5	2.0
15	Hayabusa	6-	4-	16+	5-	22+	20+	9-	3.0	23.0	5.0	1.5
16	Yumeki	11-	22+	15-	10-	20+	14+	6-	3.0	19.5	5.0	1.5
17	TSP	13-	12-	5-	18-	21+	22+	19+	3.0	17.0	3.5	1.0
18	Shallow Thoughts	9-	1-	14-	17+	19-	21+	12-	2.0	23.5	4.0	0.0
19	Daemon Shogi	12-	13-	22+	14-	18+	11-	17-	2.0	18.5	2.5	0.0
20	HIT-Shogi	7-	8-	10=	21+	16-	15-	14-	1.5	22.0	1.0	0.0
21	Gasho!!	1-	9-	8-	20-	17-	18-	22+	1.0	22.0	0.5	0.0
22	Tsubakihara Shogi	10=	16-	19-	7-	15-	17-	21-	0.5	20.0	0.0	0.0

Table. 1: Results of the First Qualification Round
* Tanase Shogi, Spear, Tomi, My Move, Ayamari Shogi, God Shogi, Misaki, Mattari-Yuuchan and Auau Shogi qualify for the second qualification round.

3. The Second Preliminary Stage

I went into the second day with little hope of qualifying for the finals, but after an amazing first round game win against Kinoa Shogi (a game that lasted almost 500 moves!) and a solid win against Ayamari Shogi in the second round, I almost started to believe in a miracle. However, in computer contests miracles rarely happen and after losses in round 3 and 4 against Gekisashi and Kakinoki Shogi I was happy to finish with 5 wins and 4 losses. 9th place in the second round was Spear's best result ever and I will be looking up in 2008, trying to make it to the final for the first time.

The second qualification round was won by Gekisashi, which was more or less expected, having won this tournament multiple times before. Gekisashi dominated the opposition, winning all its games. Second place was for Tanase Shogi, which was a little surprising given the problems it had in some of the games on the first day. Tanase claimed that his night-long learning session combined with what he called "doping" (changing learned parameters by hand that were obviously wrong) before the second day had made his program much stronger. The other programs that qualified for the final round were Bingo Shogi, Dragon's Egg and K-Shogi. For K-Shogi it was the first time to reach the final eight, narrowly edging favorites Kakinoki Shogi, GPS Shogi and Otsuki Shogi. This was especially hard on Kakinoki

Shogi, which had started with 5 wins and needed only one more to qualify. Instead, Kakinoki Shogi lost all of its remaining games including one caused by a strange bug in a won position against Tanase Shogi in the 7th round. The loss in the final round against K-Shogi made the drama complete.

No.	Program Name	1	2	3	4	5	6	7	8	9	Pt	SOS	SB	MD
*1	Gekisashi	24+	11+	9+	10+	2+	6+	3+	4+	7+	9.0	45.0	45.0	37.0
*2	Tanase Shogi	12+	18+	11+	4+	1-	8+	6+	5+	3+	8.0	51.0	42.0	32.0
*3	Bingo Shogi	13+	15+	7+	5+	6-	4+	1-	12+	2-	6.0	52.5	30.5	20.5
*4	Dragon's Egg	20+	16+	5+	2-	14+	3-	9+	1-	8+	6.0	50.0	27.0	18.0
*5	K-Shogi	14+	7+	4-	3-	10+	15+	8+	2-	6+	6.0	48.0	28.0	19.0
6	Kakinoki Shogi	21+	17+	10+	9+	3+	1-	2-	8-	5-	5.0	51.0	23.0	14.0
7	GPS Shogi	19+	5-	3-	8-	20+	11+	15+	10+	1-	5.0	47.0	21.0	13.0
8	Otsuki Shogi	18-	12+	22+	7+	17+	2-	5-	6+	4-	5.0	45.0	21.0	14.0
9	Spear	15+	13+	1-	6-	12+	17+	4-	16-	21+	5.0	44.5	20.5	12.5
10	KFEnd	16+	20+	6-	1-	5-	19+	14+	7-	17+	5.0	44.0	19.0	12.0
11	Shotest	23+	1-	2-	14-	16+	7-	24+	18+	15+	5.0	39.5	13.5	9.5
12	Nara Shogi	2-	8-	23+	24+	9-	13+	17+	3-	16+	5.0	38.0	14.0	9.5
13	Ayamari Shogi	3-	9-	19+	16=	23+	12-	21+	15-	20+	4.5	35.5	11.5	6.0
14	Tomi	5-	19+	20-	11+	4-	18+	10-	17-	22+	4.0	39.0	15.0	8.0
15	Kinoa Shogi	9-	3-	24+	21+	18+	5-	7-	13+	11-	4.0	38.5	11.5	7.0
16	Wildcat	10-	4-	21+	13=	11-	23=	22+	9+	12-	4.0	37.0	10.0	3.0
17	Usapyon	22+	6-	18+	23+	8-	9-	12-	14+	10-	4.0	36.5	11.5	6.0
18	God Shogi	8+	2-	17-	22+	15-	14-	19+	11-	24+	4.0	36.0	11.0	6.0
19	My Move	7-	14-	13-	20+	22+	10-	18-	24+	23+	4.0	29.0	6.5	3.5
20	Misaki	4-	10-	14+	19-	7-	21-	23+	22+	13-	3.0	35.0	7.5	2.0
21	Mattari-Yuuchan	6-	22-	16-	15-	24+	20+	13-	23+	9-	3.0	29.0	4.5	1.5
22	Garyu	17-	21+	8-	18-	19-	24+	16-	20-	14-	2.0	31.0	3.0	0.0
23	Nazoteki Denki	11-	24+	12-	17-	13-	16=	20-	21-	19-	1.5	32.5	0.0	0.0
24	Auau Shogi	1-	23-	15-	12-	21-	22-	11-	19-	18-	0.0	37.5	0.0	0.0

Table. 2: Results of the Second Qualification Round.
* Gekisashi, Tanase Shogi, Bingo Shogi, Dragon's Egg and K-Shogi qualify for the finals.

4.   The Finals

Before the tournament, Gekisashi was generally considered the odds-on favorite. Winning all its games in the second preliminary round (the last program to do so was YSS in 1999) just strengthened this belief. Bonanza would also have a good shot at defending its crown and YSS always is right there until the end. It would be hard to put money on Tanase Shogi in its first year and the other programs were expected to make less impact.

The biggest result of the first round was that Tanase Shogi beat Bonanza. This shifted the momentum immediately from Bonanza to Tanase Shogi. The second round was uneventful, but in the third round Tanase Shogi also beat Gekisashi and now Tanase Shogi was suddenly the heavy favourite. YSS had also won its first three games, but had a much tougher schedule ahead.

In round 4 YSS lost against Gekisashi and Tanase beat Dragon's Egg, so now Tanase Shogi was the only unbeaten program with Bonanza, YSS and Gekisashi all on three points. More importantly, Tanase Shogi's only remaining difficult opponent seemed to be YSS.

The game between YSS and Tanase Shogi was a great fight, showing all the strengths and weaknesses of the current computer shogi programs. Both programs seemed to be ahead at some point, but neither was able to place the final blow and in the endgame things were too close to call. The end was very exciting as Tanase Shogi seemed to play the winning move, but after that the game was over in a flash with YSS the winner! It seemed that Tanase didn't have time to put a good mate solver in his program and what looked like the winning move actually overlooked a rather simple mate by YSS. Even more painful than this was that instead of the move that looked winning, there was a long mate in the position that would have given Tanase Shogi the victory. It was quite a difficult mate, but the mate solver in Tanase's old program found it in 1.2 seconds! A tough loss and now YSS was suddenly half a step ahead.

In the 6th round Gekisashi dropped out of the race with a loss against Bonanza. YSS beat TACOS and Tanase Shogi didn't have much problems with K-Shogi. So with one round to play, there were still three possible winners: if YSS would beat Bonanza, YSS would win the tournament. If Bonanza would beat YSS and Tanase Shogi would win, Tanase Shogi would take first place. Bonanza could only defend its title if it would win against YSS and Tanase Shogi would lose against Bingo Shogi.

Some network trouble with YSS delayed the start of the game against Bonanza by some twenty minutes. When the game finally started, Tanase Shogi already had a solid advantage against Bingo Shogi. Tanase Shogi converted this quite comfortably, which meant that Bonanza no longer had a chance to win the tournament.

The game between YSS and Bonanza was quite complex. Bonanza was attacking strongly, but it was unclear if the attack was strong enough. YSS's king was drawn out in the middle of the board, but there never seemed to be a clear knock-out punch. In the end YSS found some good moves to weaken Bonanza's strong castle formation, despite the fact that YSS's king still was very exposed. With the exposed king actually helping the attack, YSS won the game and the title. It was YSS programmer Yamashita's third world title (YSS also won in and 1997 and 2004).

No.	Program Name	1	2	3	4	5	6	7	Pt	SOS	SB	MD
1	YSS	7+	8+	5+	3-	2+	6+	4+	6.0	22.0	17.0	11.0
2	Tanase Shogi	4+	6+	3+	8+	1-	7+	5+	6.0	22.0	16.0	11.0
3	Gekisashi	5+	7+	2-	1+	8+	4-	6+	5.0	23.0	12.0	6.0
4	Bonanza	2-	5+	8+	7+	6+	3+	1-	5.0	23.0	11.0	6.0
5	Bingo Shogi	3-	4-	1-	6+	7+	8+	2-	3.0	25.0	3.0	1.0
6	TACOS	8+	2-	7+	5-	4-	1-	3-	2.0	26.0	1.0	0.0
7	K-Shogi	1-	3-	6-	4-	5-	2-	8+	1.0	27.0	0.0	0.0
8	Dragon's Egg	6-	1-	4-	2-	3-	5-	7-	0.0	28.0	0.0	0.0

Table. 3: Results of the Finals

5. Conclusions

When looking at the final results, this year four programs were much stronger than the rest. YSS, Tanase Shogi, Gekisashi and Bonanza only lost against each other. The other programs in the final had no significant impact. Only the best three programs are automatically qualified for next years final round,

but four seeded programs instead of three would have been more natural in this situation. Now Bonanza gets the honor of stomping the rest in the second preliminary round next year.

Last year Gekisashi probably should have won and this year Tanase Shogi could point at one unlucky moment that changed the outcome of this tournament. However, YSS is a deserving champion, which it showed after the tournament by playing a very close game against one of the best amateur players in Japan. After the tournament was over, the chairman of the Japanese Shogi Federation Yonenaga Kunio announced that there will again be a game between the top computer program and a professional next year. It was great news to hear that the game between Watanabe and Bonanza will not be a one-time event. It will take another couple of years before the computer can actually win such an encounter, but playing against the best human opposition will have an important impact on computer shogi, exposing the main weaknesses of the top programs.