NEWS, INFORMATION, TOURNAMENTS AND REPORTS

MICRO CHESS COMPUTERS (Part 2)

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INTRODUCTION OF A CONTEST

Doubt was expressed whether the Super Constellation would compete during the Micro World Championship in Glasgow (see ICCA Journal, Vol. 7, No. 3) and indeed, the manufacturer decided not to enter his machine. This deprived us of an interesting confrontation between the Elegance Challenger and the Super Constellation. But why should we not organize such a contest ourselves?

Immediately after 'Glasgow' we were able to lay our hands on these two computers. The Elegance Challenger was initially produced with a processor running at 3.0 MHz, but at an early stage this was increased to 3.6 MHz. We had the 3.0 MHz version put at our disposal, with 24K ROM and 4K RAM, while the Super Constellation has a massive 56K ROM and 4K RAM available.

THE CONTESTANTS

Externally, both computers could not be more different. While the Elegance Challenger (EC) is housed in the beautifully crafted wooden Auto Response Board (made in Italy), as befits the elite, the Super Constellation (SC) is an entirely plastic computer, with a pressure-sensitive playing surface.

EC's playing surface measures 26 x 26 cm, which is an ideal compromise in the sense that it is not too big to tuck away in a suitcase when travelling, yet not too small so that the board does not get cluttered with the pieces when playing a game. The SC's smaller surface (20 x 20 cm) has this tendency, also because its pieces are somewhat too large for the size of the squares and they are not of standard Staunton design.

Both manufacturers have put a lot of thought into making their computers user-friendly, but they have chosen completely different ways to achieve it. It is really a matter of taste which approach is to be preferred and therefore the table at the end of this article reflects mainly the time it takes to complete the action in question.

Some time has to be spent to learn how to operate these machines, especially while they are equipped with all sorts of bells and whistles. Sixteen buttons are needed to operate the SC, while the EC uses only eight, but an ingenious method has been developed here by which many features can be programmed by activating the squares on the playing surface.

One significant advantage of the EC over the SC is the way in which the moves are shown. The EC has an LED for each square, but the SC has them only along the edge of the board, creating coordinates. Initially one can only see the 'from' square and, only after having pressed the piece on this square, the 'to' square becomes apparent. This system occasionally leads to errors with the SC and playing speed chess becomes quite a problem.

LEVELS OF PLAY

The SC distinguishes itself clearly by two unique features. It is possible to program 2000 additional half-moves into the opening book with one's favorite opening. The SC is further equipped with 8 training levels, in addition to the 8 regular playing levels. On training level 1, the computer calculates 1 ply ahead, on training level 2, 2 plies, etc. The SC is thus also very suitable for the novice player.

The EC has 12 playing levels, of which 3 for mate search and one for thinking without a time limit. The remaining 8 levels are playing levels, ranging from 60 moves in 5 minutes to 30 moves in 3 hours. This last level seems to be of little practical use. However, it does have the most widely used tournament levels, 40 moves in 2 hours and 40 moves in 2½ hours.

Besides the 16 levels already mentioned, the SC has another 8 levels for mate search and one for unlimited thinking. Playing levels comprise the speed chess level of 60 moves in 5 minutes up to the tournament level 40 moves in 2 hours. It does not therefore have the 40 moves in 2½ hours level.

In contrast to the SC, the EC is of modular design and it will accept modules which are/will become available for openings, middle game, end game and speed chess.

HINTS SUPPLIED

Both computers will display the move they are contemplating when pressing the 'hint' button. If it is the opponent's move, then the computers will show the expected move, which they continue to analyse on the opponent's time. By pressing repeatedly the hint button, the EC shows the best line so far up to 8 plies! The SC will show in that case all legal moves in that position. This feature is of little practical value as both machines will cease to think on the opponent's time.

If the hint button is pressed while the computers are still in the opening book, the EC will display the next move in this opening variation, but if the same procedure is followed with the SC, it shows irrelevant moves. Example:

	SC	EC	
1.	e2-e4	e7-e5	
2.	Ng1-f3	Nb8-c6	
3.	Bf1-c4	Bf8-c5	
4.	c2-c3	Ng8-f6	
5.	d2-d4	e5xd4	
6.	c3xd4	Lc5-b4+	
7.	Bc1-d2	Nf6xe4	SC hinted Nc6xd4
8.	Bd2xb4	Nc6xb4	SC hinted Ne4xf2
9.	Bc4xf7+	Ke8xf7	SC hinted Ke8-e7
10.	Qd1-b3+	d7-d5	SC hinted Nb4-d5
11.	Qb3xb4	a7-a5	SC hinted c7-c5
12.	Qb4-b3		Here came the first useful hint: Rh8-e8

OFFERING A DRAW

It is possible to offer the EC a draw and it will indicate whether it refuses or accepts. The EC can also offer a draw itself, but we have not yet seen this happen. The EC and SC know the 50-move rule, 3× the same position and stalemate. The SC cannot be offered a draw nor will it offer it. It will however indicate a draw if the material on the board is insufficient for a win for either side.

THE MATCHES

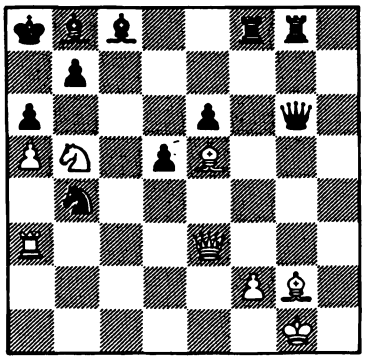
As time is usually a limiting factor in testing, we had the computers play each other on their probably most used levels. Thirty games of speed chess were played (60 moves in 5 minutes) and 30 games on tournament level (40 moves in 2 hours). Care was taken not to have the same openings on the board during the first 15 games. Then the same openings were played with reversed colors to give both an equal chance.

The speed-chess event showed a clear win for the EC: 18-12 with 12 draws. At the tournment level the gap between them was less pronounced, but still clear enough: 16½-13½ for the EC. With a 3.6 MHz EC the results could have been even more favorable.

Almost all games showed the same pattern: once out of the opening book, the SC played the middle game better than the EC. However, the EC managed to draw lost games or even win them eventually. The EC excels in the end game, while the SC does poorly in that field.

RESIGNATION IN A WON POSITION

The SC resigns when it has lost too much material. EC will also resign, but only if this feature has been activated and only when it sees that mate is unavoidable. For the SC this feature may turn against it (see Diagram 1).



White to move
Mate in 5 moves

DIAGRAM 1

The diagrammed position is a mate in 9 plies. EC needs only 10 seconds to find Qe3-a7+ on level 1, but SC resigns as it is already a Rook and 2 pawns down and will lose more material trying to avoid mate on g2. Even on its unlimited thinking level, the only move it comes up with is Be5-g3.

OTHER EXAMPLES

The SC has special algorithms, which no other program has. Obvious captures are executed with a minimum delay, even if they have not been expected. This increases the speed of play. Also, unexpected sacrifices on h2 and h7 are possible, as in Diagram 2.

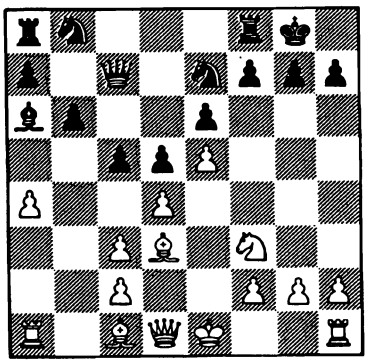


DIAGRAM 2

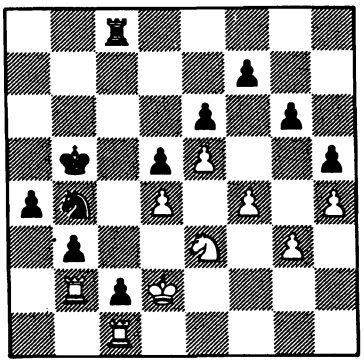


DIAGRAM 3

The SC plays almost instantly Bd3xh7+! and wins. But what happens if the pawn on c2 is removed? Yes, it plays again this sacrifice, but now Ba6-d3 is possible for Black and White loses!

The position of Diagram 3 occurred in a game between Lutzko and Moskovich, Riga 1984. Black has 3 passed pawns for his Rook, but White's defences are stretched to the limit to stop a queening advance. Black's difficulty is how to make further progress, for neither a4-a3, Rb2xb3 nor Nb4-a2, Rb2xa2, b3xa2 Ne3xc2 is convincing. As this is the end game, EC plays here elegantly Rc8-c4!! threatening to win another pawn. Thus Ne3xc4, d5xc4 and now the threat is a4-a3. After Rc1-a1 Black still plays a4-a3 and with Ra1xa3, c4-c3+, Kd2xc3, Black wins with c2-c1Q+. It takes EC 8 minutes 55 seconds to find the winning move, which means that the faster EC version, under favorable conditions (a lot of time left on the internal clock), could possibly have played this move under tournament conditions. The SC fails after 12 hours and 11 ply by suggesting Rc8-c7.

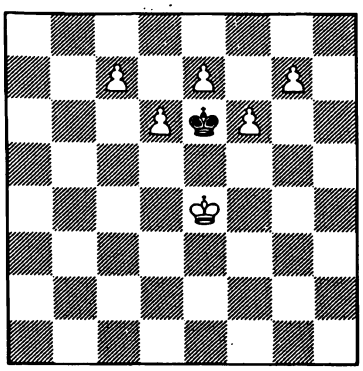


DIAGRAM 4

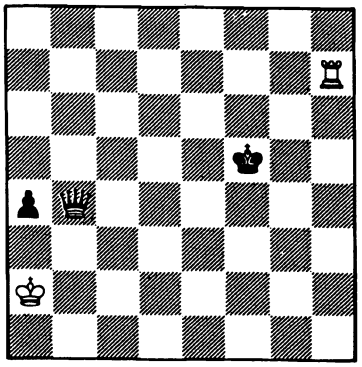


DIAGRAM 5

For the test of the underpromotion as presented in Diagram 4, both computers are set to their 'mate in 30' level. After 22 seconds EC plays e7-e8B!!, Ke6xf6, g7-g8R!!, Kf6-e6, Rg8-g6 mate, but SC plays c7-c8Q+ and gives mate in 4 moves.

The position of Diagram 5 arose after the 86th move by White (EC). Under normal conditions we would have no hesitation to adjudicate this position a win for Black, but as we were testing, Black would have to prove it. SC proceeded as follows: Qb4-b3+, Ka2-a1, a4-a3??? White has now perpetual check with his Rook and SC realized this when its King had arrived on the f4 square where EC checked it by Rh5-h4+. SC played courageously Kf4-g3 forcing the draw itself! We then reversed the colors, to see how EC would handle this position. It forced SC to resign on the 95th move.

The EC tends to play a Bishop to b5 and b4 when there are still pawns on c7 and c2. When calling up the expected move, it shows that the opponent should play their Knights to c6 and c3, but with c7-c6 and c2-c3 EC loses an important tempo. Quite often EC wishes to place its Knights on the a- and h-files. Elites and Prestiges also have this tendency and apparently this has not yet been cured. Storming forward with its a-pawn is another curious habit which only rarely is warranted during a game.

TOURNAMENT IN STUTTGART

At a recent tournament "Man against Computer" in Stuttgart, in which Elite, Super Constellation, Conchess and Psion participated, Elite amassed 10 points, Psion and Conchess each 8 and Super Constallation only 6.5. The Editor of the magazine "Europe-Rochade" (Nov. 1984, No. 11) concluded that Elite's win was expected, but that Super Constellation's result was a disappointment, thus confirming the result of this test.

NOTE

This article has appeared in a modified form in the Dutch magazine "Computerschaak", Vol. 4, No. 6, pp. 242-245, December 1984 and Vol. 5, No. 1, pp. 19-24, February 1985.

CORRECTIONS

In our article "Micro Chess Computers" in the ICCA Journal, Vol. 7, No. 3, a couple of statements need correction.

1. The manufacturer of the Elegance Challenger indicated to us that the improved playing strength over earlier versions was achieved by a breakthrough in the software. This statement is not correct. Better play was achieved through further refinements to the program.

2. A slip of the typewriter put the estimated rating of the Elegance Challenger and the Super Constellation at 2150 ELO. This should of course have been 2050 ELO.

We welcome suggestions for additonal information to be put into the table as presented on the next page and for values to be attached to features.

Model	Elegance		Super Constellation	
Price	$ 395.--		$ 395.— *	
Processor	6502B 3.0 MHz */1		6502	
Program Size	24K ROM, 4K RAM		56K ROM, 4K RAM	
		POINTS */2		POINTS
Opening Book Size	3000 */3 positions	0 150	20.000 moves	200
Opening Book User-Programmable	NO	0	YES	150
Option to Cancel Opening Book	YES	25	NO	0
Opening Book Training	YES	100	NO	0
Opening User-Selectable	YES	100	NO	0
Power: AC	YES		YES	
Batteries	NO	0	YES	250
Memory Retention	± 1 hour	50	± 90 days	150
Interchangeable Modules	YES	500	NO	0
Number of Levels	12	75	25	150 */4
Auto-Response Board	YES	200	NO	0
Pressure-Sensitive Board	NO	0	YES	50
Size of Playing Surface	26x26 cm	100	20x20 cm	50
Displays Thinking Process	YES	25	YES	25
Thinking Process Interrupt	YES	100	YES	100
Enter Position	YES	150	YES	150
Verify Position	YES	100	YES	25
Searches for Alternate Sol. Probl.	YES	75	NO	0
Thinks in Opponent's Time	YES	100	YES	100
Takes Back Number of Moves	ALL	25	ALL	25
Gives Hint	YES	100	YES	75 */4
Displays Main Variation	YES	50	NO	0
Next Best Option	YES	50	NO	0
Displays Depth of Analysis	NO	0	YES	75
Random/Best Option	NO	0	YES	25
Plays Black from Bottom	YES	100	NO	0
Resigns	YES	50	YES	25 */4
Announces Mate	YES	50	YES	50
Claims a Draw (Displays Why)	YES	100	YES	50 */5
Offers/Refuses a Draw	YES	100	NO	0
Underpromotes	YES	150	YES	125 */4
Chess Clock	NO	0	YES	150 */6
Printer	YES	100 */6	YES	100 */6
Paper Type	NORMAL	100	THERMAL	75
Quality Print	ACCEPTABLE	75	GOOD	100
Information Printed	ACCEPTABLE	50	GOOD	100
Active/Passive Play	ACTIVE	250	ACTIVE	250
Human-Style Play	GOOD	200	AVERAGE	100
Middle-Game Strength	AVERAGE	800	GOOD	1000
End-Game Strength	EXCELLENT	1000	AVERAGE	550
Value for Money	EXCELLENT	800 */7	AVERAGE	450 */7
Estimated Rating	ELO	2050	ELO	2000
TOTAL		8050		6775

* Price in U.S.A. In Europe SC retails at half the price of the EC.
*/1 Now only 3.6 MHz available.
*/2 One of the computers gets maximum points for category. The more points given, the more importance attached to feature.
*/3 Can be extended with modules.
*/4 See text.
*/5 Only when printer is connected.
*/6 Only as an option.
*/7 Comments and points should be reversed for Europe. In that case total points for EC are 7700 and for CS 7125.

GAMES

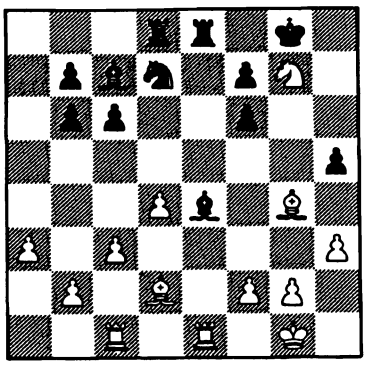
Three games are presented below. Only introductory comment is supplied. The reader himself may judge the quality of play.

Game 1: SC - EC

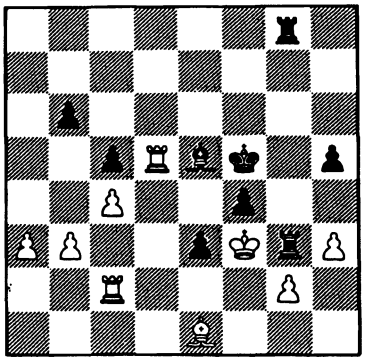
Caro-Kann opening. On move 5 both computers are out of their opening book. Move 8 for Black is typical for this program. It expects Bc1-d2. First Qd8-c7 (12th move) and then Qc7-b6 two moves later: EC does not mind losing time. 18. Be2-g4 looks odd, but it is the beginning of exciting complications. The board is on fire. When the smoke has cleared, Black is ahead: more space and an improved pawn structure. Black now continues aggressively and it even looks as though he is carrying out a plan! Nasty threats for White everywhere, and after 36. Rd1-d5? Black's attack culminates in a sacrifice of the exchange, in order to promote a passed pawn. White loses too much material and resigns on move 56.

SC - EC

1. e4 c6 2. Nc3 d5 3. Nf3 Bg4 4. h3 Bh5 5. Be2 dxe4 6. Nxe4 Nf6 7. Nf6+ exf6 8. d4 Bb4+ 9. c3 Bd6 10. 0-0 0-0 11. Be3 Nd7 12. Qb3 Qc7 13. Rfe1 Rfe8 14. Rac1 Qb6 15. Qxb6 axb6 16. a3 Bg6 17. Nh4 Be4 18. Bg4 Rad8 19. Nf5 Bc7 20. Bd2 h5 21. Nxg7 Kxg7 22. Bxd7 Rxd7 23. f3 f5



Position after 21. Nxg7



Position after 36. ... Rg3+

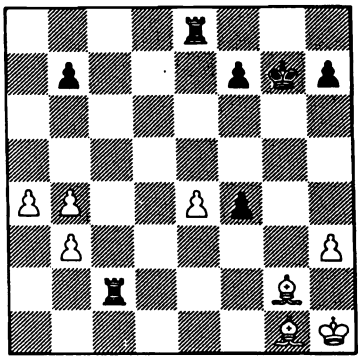
24. fxe4 fxe4 25. Re2 Rde7 26. Kf2 f5 27. c4 f4 28. Bc3 e3+ 29. Kf3 Kg6 30. d5 Kf5 31. dxc6 bxc6 32. Rd1 Rg8 33. Be1 Reg7 34. Rc2 Be5 35. b3 c5 36. Rd5 Rg3+ 37. Bxg3 Rxg3+ 38. Ke2 Rxg2+ 39. Kd3 f3 40. Rd8 f2 41. Rf8+ Bf6 42. Rc1 Rg1 43. Kxe3 Rxc1, and White resigned on move 56.

Game 2: SC - EC

Sicilian Defence. The transition from opening to middle game of the SC is excellent, unlike the EC. The white position is being played naturally, while Black misplaces both his Knights on the a- and h-files. The SC improves his position constantly and triples on the d-file, to put pressure on the weak black Pawn on d6. After 19. ... Nh6-g4 Black must lose material. The EC now starts action on the Queen's side and creates certain complications. The black Knight on h6 is lost, but the EC gets some compensation by exchanging two pieces for a Rook. However, those two pieces are a pair of Bishops, let's see how White takes advantage of them. White has of course a won position. However, White manages to lose one of the Bishops and has to force a draw by repetition.

SC - EC

1. e4 c5 2. Nf3 e6 3. d4 cxd4 4. Nxd4 Nc6 5. Nc3 Qc7 6. g3 a6 7. Bg2 Nf6 8. 0-0 Be7 9. Be3 0-0 10. f4 d6 11. Kh1 Bd7 12. Qd3 Ng4 13. Bg1 Na5 14. Qe2 Nh6 15. Rf3 Bf6 16. Rd1 Nc4 17. b3 Na3 18. Tfd3 Rfe8 19. Qd2 Ng4 20. h3 Nh6 21. g4 Nb5 22. Ndxb5 Bxb5 23. Nxb5 axb5 24. c3 b4 25. cxb4 Rac8 26. g5 Bc3 27. Rxc3 Qxc3 28. gxh6 e5 29. Qxc3 Rxc3 30. hxg7 Rc2 31. a4 Kxg7 32. Rxd6 exf4 33. Rd7 Rc1 34. Rxb7 Rd8 35. Kh2 Rd3 36. Bc5 f3 37. Bxf3 Rxf3 38. Kg2 Rxb3 39. Bd4+ Kf8 40. Rb8+ Ke7 41. Bf2 Rc4 42. Bh4+ Kd6 43. Bg3+ Ke7 44. Rb7+ Ke8 45. Rb8+ Ke7 46. Bh4+ Kd6 47. Bg3+ Draw



Position after 32. ... exf4

Game 3: SC - EC

Again it is the SC with the better position after the opening and, once again, we have two EC Knights on the a- and h-files. Won't he ever learn!? As usual SC gives EC a hand in improving his position. Both EC Knights are exchanged together with a Bishop. The resulting end game with Bishops of opposite colors, Queens and a pair of Rooks is better for the SC, but on the 28th move he "forgets" to open the diagonal a1-h8 by playing d4-d5. Black does not hesitate to move a Pawn to d5 himself, but commits an error in not playing Be4xd5 on the next move. From this moment onwards, Black creates trouble for himself. By playing h7-h6 (move 46) the black King has to keep this Pawn covered and cannot assist its Pawns on the Queen's side. White wins.

SC - EC

1. e4 d6 2. d4 Nf6 3. Nc3 g6 4. f4 Bg7 5. Nf3 0-0 6. Bd3 Nc6 7. 0-0 Ng4 8. h3 Nh6 9. Bc4 Bd7 10. Be3 Na5 11. Bd3 e6 12. e5 Nf5 13. Bf2 f6 14. Bxf5 exf5 15. exf6 Qxf6 16. Nd5 Qd8 17. Bh4 Qb8 18. Rel Nc4 19. b3 Bb6 20. Nxb6 axb6 21. Qd3 Bc6 22. Ng5 Ra5 23. Ne6 Re8 24. Nxg7 Kxg7 25. c4 Rxel 26. Bxel Be4 27. Qg3 Ra8 28. a3 d5 29. cxd5 Dd8 30. Rcl Rxa3 31. Qc3 Kh6 32. Qxc7 Qxc7 33. Rxc7 Ral 34. Kf2 Bxd5 35. g4 fxg4 36. hxg4 Ra2+ 37. Kg3 g5 38. fxg5+ Kg6 39. b4 Kxg5 40. Rg7+ Kh6 41. Re7 Ra3+ 42. Kf4 Rf3+ 43. Ke5 Re3+ 44. Kd6 Rxe7 45. Bd2+ Kg6 46. Kxe7 h6 47. Kd7 Bf3 48. Kc8 b5 49. Kc7 Bd5 50. Kb6 Bc6 51. Kc5 Ld7 52. d5 Lxg4 53. Kxb5 h5 54. Kb6 Bf5 55. d6 h4 56. Kc7 Kf7 57. d7 Bxd7 58. Kxd7 h3 59. Bf4 Kf6 60. b5 Kf5 61. Bd6 and White won.

Position after 27. ... Ra8

Photo by L. Lindner

When Swede meets Swede ..... Half-glasses to toast a shared victory (Ulf Rathsman (l.) and Johan Enroth)