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MICRO CHESS

This month sees the start of a regular new chess column. Tony Harrington kicks off with a look at the latest dedicated chess computer from SciSys.

THE NEW CHAMPIONS

This is the start of a regular monthly column on computer chess. I will be concentrating, at least for the first few months, on dedicated chess computers — the kind you can go into a games shop and buy for anything from £35 to £400 — and the companies that make them.

Computer chess is still new enough for a question like 'Who is Fidelity?' (or SciSys, or Hegener and Glazer) — to name but three of the leading suppliers of dedicated chess computers — to need an answer. More importantly, computer chess, by its very nature, involves a fairly unique meeting point between the separate areas of business, computers and chess. So this question gives one an ideal way of tackling all three areas simultaneously.

This doesn't mean that the technical issues — like how you go about programming your own personal computer to play chess — will be entirely neglected. But for the first few months we'll be looking at what is around and how the machines available perform. Computer chess tournaments are becoming increasingly frequent and we'll be keeping an eye on the results of such competitions. There will also be a games section, where in future issues annotations be done by international master David Levy.

Levy is well known in chess playing circles for his bet a decade ago that no computer would be produced for ten years that would be able to beat him. He was right, but he himself admits that the time is approaching when the gap between experienced players like himself and computers will close. As a founder and director of Intelligent Software which specialises in writing chess programs he himself is working to make that prediction come true.

This first column is about SciSys, the London-based supplier, and looks at its Chess Champion Mark V and the new, soon-to-be-released Mark VI. The decision to start with this particular supplier is arbitrary — both the founder, Eric Winkler, and the UK director, Andrew Page, happened to be on hand — and it doesn't mean that I think it is the best supplier around.

Eric Winkler came into the chess computer business four years ago, almost in spite of himself. His background is in physics and one thing he is not is a chess player. Winkler was working in a trading company and had done some electronics research when he was approached by Peter Auger (who now runs a rival chess computer company, called Novac). 'Auger came to my office and said, "Eric, build me a chess computer." And he sent round a microchip as an example of what could provide the means for constructing one,' Winkler remembered. This was in early 1978.

The technological challenge interested him, and when Auger assured him that he (Auger) would find someone to program the computer once it was built, the whole project began to take shape. During the short period when Winkler and Auger were partners three versions of their particular machine were produced. Then Winkler left, in late 1979, to set up his own company SciSys.

His chess computers are unique (we think, though things happen too quickly in this market so someone else may be doing this too by the time we go to press!) in that they use a liquid crystal display (LCD). The machines are assembled in Hong Kong and, in the early days, SciSys ran into production difficulties training assembly workers to meet the demanding tolerance levels demanded by the technology. Users complained about faulty machines and the LCD display seemed to be an unnecessary complication. (It has definite advantages, though, as we will see.)

SciSys set up a London office in November 1980 and Andrew Page was appointed to control European operations outside of Germany (which has its own office). Chess computers are now big business, and Page estimates that the UK office turnover this year will be around two million dollars.

Now that the production problems have been solved the advantages of an LCD chessboard display can be appreciated. The obvious comparison is with the various 'sensor-board' machines (such as Fidelity's Chess Challenger 9), which actually give you a chess board and pieces. There the moves are indicated by LEDs which light up on the square of the piece the machine intends to move, and on the square it wants to move the piece to. The LCD display gives you an animated two-dimensional, pictorial chessboard. So from the start you don't have the satisfaction of actually holding a chess piece in your hand. (SciSys, incidentally, has a sensor board machine in its range, but this machine has a different development history and a different programmer.)

For many chess players the absence of a 'real' chess board is a disadvantage, not an advantage. They like the familiarity of board and pieces and the illusion that one is playing a 'normal' game. I like the display, not least because I combine chess with TV watching and the LCD display means I don't have to worry about chess pieces falling off the board if it tilts out of kilter while my attention's on the screen rather than the game.

More seriously, the LCD display comes into its own if one considers the replay feature. Here again, the comparison is with sensor board machines. Many sensor board machines have a replay function, but it is fairly tedious and involves the player following an endless series of LEDs lighting up square after square, replaying the move sequences.

The LCD board on the other hand simply provides a movie-like rerun of the game. The player doesn't have anything to do except concentrate on the game as it unfolds on the board. As a teaching device, it is hard to beat. I've played dozens of games on it and it's a marvellous way of finding out where you or the computer lost the initiative, or went astray in the opening, middle-game or end-game.

Another advantage of the LCD display is that it enables a range of comments and a two-ply analysis to be displayed. (A ply, for the uninitiated, is a single move by one player.) What the analysis entails can be seen by looking at the demonstration game, where we play the Mark V against the Mark VI, and give the analyses provided by both after each move.

For those who feel that all these advantages don't outweigh the disadvantage of not having a physical, solid chessboard to play on, SciSys is about to introduce a sensor-board which can be added to the Mark VI. It is not

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 1  e4 d5
 2  Nc3 Nf6
 3  Bb5 c6
 4  Bd3 Bg4
 5  Nf3 ...    (Mk.5; b8d7, 0-0  +001)
    ... e5     (Mk.6; e4d5,c6d6 +001)
 6  0-0 ...    (Mk.5; b8d7,e4d5 +001)
    ... Nxd4   (Mk.6; c3e4,d5e4 +003)
 7  Nxe4 ...   (Mk.5; d5e4,d3e4 -000)
    ... d5e4   (Mk.6; d3e4,f7f5 +000)
 8  Bxe4 ...   (Mk.5; f7f5,e4d3 -012)
    ... f5     (Mk.6; e4d3,e5e4 +015)
 9  Bxf5...    (Mk.5; gf4, f3e5 -011)
    ... BxB    (Mk.6; f3e5,b8d7 +007)
10  Nxe5...    (Mk.5; b8d7,d2d4 -011)
    ... Be7    (Mk.6; d1f3,g7g6 +010)
11  d4  ...    (Mk.5; b8d7,e5c4 -011)
    ... 0-0    (Mk.6; f1e1,b8d7 +013)
12  Be3 ...    (Mk.5; b8d7,e5c4 -012)
    ... Nd7    (Mk.6; e5d7,d8d7 +010)
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13 Nc4 ...   (Mk.5; d8c7,d1e2 -011)
   ... Qc7   (Mk.6; f1e1,a8e8 +011)
14 Qd2 ...   (Mk.5; a8e8,a1e1 -012)
   ... Be6   (Mk.6; d2c3,a8e8 +013)
15 Qa5 ...   (Mk.5; c7a5,c4a5 -011)
   ... b6    (Mk.6; a5c3,a8e8 +010)
16 Qc3 ...   (Mk.5; a8e8,c4d2 -012)
   ... Rf5   (Mk.6; f1e1,a8e8 +010)
17 h3  ...   (Mk.5; a8f8,c4d2 -012)
   ... Raf8  (Mk.6; f1e1,d7f6 +013)
18 g4  ...   (Mk.5; f5f3,c4c5 -011)
   ... Rf3!  (Mk.6; g1g2,e6d5 +018)
19 Ne5 ...   (Mk.5; d7e5,d4e5 -012)
   ... Nxe5  (Mk.6; d4e5,f3h3 +016)
20 dxe5 ...  (Mk.5; f3h3,f1e1 -021)
   ... Rxh3  (Mk.6; f1e1,e6d5 +018)
21 b4  ...   (Mk.5; g8h8,c3d4 -016)
   ... Rf4   (Mk.6; g1g2,f4g4 +040)
22 Rb1 ...   (Mk.5; offered to resign)
   ... Rxg4+(Mk.6: g1f1,e6a2 +050)
23 Kf1 ...   (MK.5; Comment; Only one move)
   ... Bc4+  (Mk.6; f1e1,h3h1 +059)
24 Ke1 ...   (Mk.5; h3h1,e1d2 -063)
   ... Rh1+  (Mk.6; e1d2,c7d7 +098)
25 Kd2 ...   (Mk.5; Comment; Only one move)
   ... Qd7+  (Mk.6; e3d4,e7g5 +114)
26 Qd3 ...   (Mk.5; c4d3,b1h1 -103)
   ... BxQ   (Mk.6; b1h1,d3e4 +087)
27 RxR ...   (Mk.5; e7b4,d2c1 -104)
   ... Be4+  (Mk.6; d2e2,e4h1 +102)
28 Ke2 ...   (Mk.5; e4h1,a1h1 -103)
   ... BxR   (Mk.6; a1h1,d7f5 +100)
29 RxB ...   (Mk.5; e7b4,h1d1 -103)
   ... Bb4   (Mk.6; a2a3,b4a4 +110)
30 Rd1 ...   (Mk.5; d7e6,d1d8 -112)
   ... Qf5   (Mk.6; d1d8,g8f7 +108)
31  c3 ...   (Mk.5; f5c2,d1d2 -112)
   ... Bxc3  (Mk.6; d1d8,g8f7 +113)
32 Rd8+ ..   (Mk.5; g8f7,d8d6 -112)
   ... Kf7   (Mk.6; f2f4,f5c2 +117)
33 Rd3 ...   (Mk.5; c3e5,f2f3 -126)
   ... Bxe5  (Mk.6; a2a3,c6c5 +126)
34 Rd8 ...   (Mk.5; c6c5,d8d5 -129)
   ... Ra4   (Mk.6; d8d2,e5c3 +132)
35 Rd2 ...   (Mk.5; c6c5,f2f3 -129)
   ... Bc3   (Mk.6; d2d8,a4a2 +142)
36 Rd6 ...   (Mk.5; a4a2,e2f1 -140)
   ... Rxa2  (Mk.6; e3d2,a2d2 +149)
37 Bd2 ...   (Mk.5; c3d2,d6d2 -195)
   ... BxB   (Mk.6; d6d2,f5e4 +206)
38 Kf1 ...   (Mk.5; f5h3,f1e2 -225)
   ... Bb4   (Mk.6; d6d7,f5d7 +223)
39 Rd7 ...   (Mk.5; f7e6,d7d2 -236)
   ... QXR   (Mk.6: F!G!,D&G$ +999)
40 Kg2 ...   (Mk.5; Comment; Forced Move)
   ... Qg4+  (Mk.6; Comment; Mate in 5)
41 Kh1 ...   (Mk.5; Comment; Forced Move)
   ... Qh3+  (Mk.6; Comment; Mate in 1)
42 Kg1 ...   (Mk.5; Comment; Forced Move)
   ... Ra1 Checkmate.
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my intention here to offer a duplication of the SciSys product catalogue. Those who want to know more about the sensor board or other chess computers in the SciSys range will get all the information they need from SciSys.

I had some fun with the computer's rather attractive habit of rating the current position on a scale of +999 to -999. It takes a pawn as being valued at 9, and bases its assessment of where it stands on the likelihood of it winning material. My finding was that so long as no one was material down, the computer tended to fancy its own game, even if one had some fiendish combination in mind.

The playing strength is in the region of 1750, though it will play a lot worse and a fair bit better than that on occasion. My own playing level is around 1900, but I found that if I didn't pay attention, or let the position slide, the program was perfectly capable of crushing me. (With the one proviso that it doesn't really know too much about endgames. Programmers find the algorithms at this point of the game incredibly tricky. Rook and pawn endings baffle masters, and the computer can be excused the odd positional blunder here.)

The 'levels' of play are set by defining the number of seconds (on average) the machine has for its move. This is extremely flexible. You can instruct it to play at whatever average number of seconds a move you fancy, and there is an elaborate facility to set up a series of eight different tournament time controls. There is also a problem solving facility which Page claims once found a solution to a complex problem quicker than the UK's grandmaster, John Nunn.

The actual lay-out of the machine was designed by Ian Sinclair, brother to Clive, and from an engineering point of view there is only one flaw. The elegant keys tend to stick from time to time, which produces an error message on the screen. I soon learned not to put my finger on the key centre but instead to press the left or right hand edge down, which got rid of the problem. According to Andrew Page, this is something that SciSys is working on.

The Mark V has been selling at £275, but the price of the new Mark VI (which is simply a new module inserted into the Mark V chassis) has been cut to £199 — as have all the Mark V machines.

Game Corner

It is perhaps appropriate that the first game should be one between the Mark V module and the new Mark VI, designed by Intelligent Software. When I spoke to him Page wasn't sure if 'improvements' made to the Mark V version actually meant that the Mark VI would beat it in practice. (One of the maddening things about writing chess programs is that everything is so interrelated that an 'improvement' in one area can actually cause weaknesses in other algorithms that go to make up the program.)

In fact the Mark VI won handsomely in the only game I set up between them, as you will see. The analysis is more or less self explanatory. After each move, I give the analysis produced by the machine that has just played. So 5)Nf3... (Mk 5; b8d7, 0-0 +001) means that the Mark V expects its opponent to develop its queen's knight to d7. It doesn't, of course, because it already has a neat combination in mind (so to speak). One of the interesting features is how the Mk.5 gradually increases its negative assessment of its position as the game proceeds. Note, too, that the two programs differ quite often in their predictions about their opponent's likely next move (ie, the move they each consider the 'best'). END