Chess

*Home computer programs for the Dragon, Spectrum and BBC
Micro performed well against some of the best micro chess
computers at the latest PCW Show. Tony Harrington reports.*

The great chess player Bobby Fisher once said, in the days before he absconded from the world championship scene, that chess is life. That is a little over-the-top for most of us. But chess *is* one of the nicest ways of getting through a few idle hours.

The major problem for most people, whatever their playing strength, is finding someone else to play against. At least, this used to be the major problem. Now that home computers are becoming as common as household TV sets, that little difficulty is a thing of the past. In the last year a good selection of reasonable chess programs for a variety of home computers have arrived on the shop shelves.

A clear sign of how much these programs have improved is the fact that this year's European Microcomputer Chess Tournament, held at the Barbican in London as part of the *PCW* Show, had a home computer category for the first time.

Only three different machines were represented at the tournament, namely the BBC Micro, the Dragon and the Spectrum. But several of the amateurs ran their entries on other home computers (which promises well for the future). The Tandy Radio Shack, the Apple and even the Sirius were there, along with a couple of Nascom machines. And nearly all the leading brands of home computer have one or more chess programs which can be played on them.

Overall, the home computer entries performed very well and either matched up to the dedicated chess computers or gave them a good run for their money. The significance of this year's tournament is that now we have four commercially available home computer programs that have stood the test of a nine-round Swiss tournament. They have competed against some of the best micro chess computers around and their results are there for all to see.

The four commercially available programs, in the order of their final placings, together with their scores are:

White Knight Mk 11 — BBC Publications: joint fourth 5+/9
Cyrus IS Chess — Intelligent Software: joint sixth 5/9
Spectrum Chess II — Artic Computing: ninth 4+/9
Cyrus Dragon — Intelligent Software/Dragon Data: 12th 2/9

There were 14 entries in all. For a full account of the tournament, see the Micro Chess column (*PCW*, December '83).

There was one other entry in the home computer section, that was Cyrus 2.5, running on a Sirius with a Z80 card. But this program is not commercially available in this form. It was simply an amended version of Intelligent Software's Chess 2001 — a dedicated chess machine which finished in second place. Cyrus 2.5 did extremely well, coming joint fourth with White Knight.

The fact that only half a point separates fourth from sixth place and sixth from ninth place tells a lot about how closely fought the competition was. You can see for yourself in the game section, what the standard was like. The one obviously disappointing result was from the Cyrus Dragon. But if you have a Dragon, don't despair. Its results do not mean that it plays a lousy game of chess.

Cyrus Dragon

The Cyrus Dragon program, which was virtually the same one as that which won the 1981 *PCW* tournament, lost a number of games because it couldn't manage its time. The tournament was played with a single time control, 50 moves in 150 minutes, but Cyrus Dragon, unlike most other home programs, has no internal chess clock.

As David Levy of Intelligent Software explained, the whole program has been squeezed into 8k, and that simply leaves no room for a clock. The architecture of the Dragon's processor is not exactly ideal, either, for computer chess.

Even so, the program has a number of compensating features.

For a start, the Dragon plays a very good game of lightning chess (at level three). It also has a well-drawn, full-screen graphics board. Ergonomically this compares very well with both Spectrum Chess II and Cyrus IS Chess, which have rather tiny boards and pieces that are not very easy to see.

Another major advantage, for my money, is that it is a cartridge-based program, not a cassette. I have a personal black spot where cassettes are concerned. And even although both Cyrus IS Chess and Spectrum Chess II load easily and quickly, the cassette format must be considered a slight drawback.

Having said this, Sir Clive has, of course, now brought out his cartridge program interface for the Spectrum, and already Sinclair Research are offering a cartridge chess program — which I believe is Cyrus, though this still has to be confirmed.

To play against most of the home computer programs, you don't have to know algebraic chess notation (though if you have any interest in chess it is worth taking a moment to master — remember, the bottom row on white's side of the board is numbered from left to right, a1 to h1; the second row is a2 to h2, and on to black's major pieces on a8 to h8). Cyrus Dragon, in common with most chess programs, has a flashing cursor on white's queen's rook square which you move about using the arrow keys.

White to play

To move a piece you move the cursor to the square occupied by the piece you want to move, then you press ENTER, move the cursor to the square you want to move to, and press ENTER again. It is a cumbersome way of getting about the board, but once you get some experience at it, it moves quickly enough. Cyrus Dragon doesn't let you just type in e2e4, which I would infinitely prefer, but there you go.

Because it uses the whole screen for the graphics board, Cyrus Dragon reserves a second screen for messages. You toggle back and forth between the two by pressing the space bar. This second screen displays the last five moves played by either side and it shows you all the commands you have at your disposal at any given time (before, during or after a game).

The fact that it displays only five moves transgresses one of the recommendations I make in the list of desirable features for home computers (see panel). But you can't have everything in 8k. Otherwise, Cyrus Dragon has most of the features you would expect. It can solve problems up to mate in six, though you might grow old waiting if the positions are particularly complicated.

White Knight

Martin Bryant's program, White Knight Mk 11, had a whole Micro Chess column devoted to it a few months back in *PCW*. It was pleasant to see it performing so well at the tournament. As sold by BBC Soft it is cassette-based and comes with a good-sized, 12-page manual.

It had fine wins against the Mephisto Experimental and Merlin X, one of the stronger amateur entries and lost only to Advance 3, the overall tournament winner, and the Novag Constellation (a dedicated chess machine).

Besides being a reasonably strong program, it has a number of very fine features. You can set the colour board and pieces you want, since you can get at the top VDU 19 statements on line 20 of the program. It has a decent chess clock built in which will record the time taken so far ·for each player. And if you're feeling flash, you can even play the equivalent of blindfold chess, looking at a blank board (with the machine keeping track of the game, of course).

Unlike Cyrus Dragon, this program has
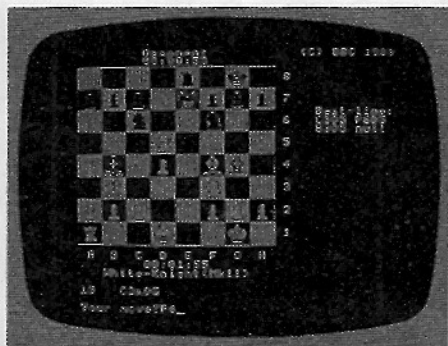
Joint 4th in PCW Tournament

Important features on chess programs

● **Legal moves:** It should be able to make all the legal moves, including pawn takes pawn *en passant*. And it should recognise the 50-move rule and draws by repetition of position. Ideally, it should also be able to resign once it discovers a forced mate against itself.

● **Playing options:** Player versus player with the computer as referee; player plays black or white against computer; computer plays itself. You should be able to switch between these different play modes whenever you like.

● **Skill levels:** Here there is a direct trade off between the time the computer takes to think and the strength with which it plays. There is a basic conflict of interest here between different categories of player. The beginner will probably want a fast response which is not so strong that the novice player has no chance of winning. The experienced player, on the other hand, wants the fastest possible response from the machine combined with maximum strength.

The current state of the art is still not quite satisfactory from an experienced club player's point of view. A program like White Knight or Cyrus IS Chess can't really provide tough opposition until you get to the highest skill levels (and not even then, for strong club players). And these highest levels are slow enough to test the patience of a saint. As a rough guide, any program you are contemplating should be able to give you at least an interesting game on level three, at roughly five to 10 seconds a move.

● **Problem Solving:** The highest skill levels are usually also called the problem-solving levels — where the machine will keep thinking until it finds the mate in two, or mate in four or whatever.

● **Setting up new positions:** This is really part and parcel of problem-solving. You should be able to set up whatever position you want quickly and easily. This feature is a great way of getting the machine to analyse any position you like, including any adjournments that you might have. You can't get your money back, if it doesn't spot a trap or two, but at least it should help you to check out some of your own ideas.

● **Book openings:** Chess programs differ widely in the number of book openings with which they come equipped. If you are interested in checking up on your machine's favourite lines, make it play itself on the lowest skill level. By starting a new game every 10 or 15 moves, you will soon get a sense of its little secrets.

● **Take-back and replay:** The take-back facility is useful for both the beginner and the strong player. The former will need to salvage a blunder or two, while the latter might want to give the computer a second chance after a particularly poor move!

The take-back and position set-up facilities are handy for looking at various opening possibilities as well. Most computer programs have a very limited range of standard openings, and you can force the computer out of its familiar opening line by taking back its last move and starting it off on a variation you'd prefer to see it play.

The replay facility should, ideally, allow you to replay the entire game at any point. One of the best replay facilities I know of is on the dedicated chess computer, SciSys Mk V, which allows you to specify the length of the interval between each move on a replay so you don't need to watch an entire game replayed at three seconds a move.

To get the flavour of an opening, it's nice to be able to have an animated replay on the screen at about one second a move. But to study the implications at a particular point, you might want to change the speed of the replay to four or even 40 seconds. Unfortunately, none of the home computer programs I know of give you the chance to set the speed of the replay.

● **Saving a position:** Another boon of computer chess. Be sure to check whether or not the machine simply records the existing position or whether it stores the moves to that point.

● **Hints:** Most programs have a hint command, which will tell you what the computer thinks your best move is at any point.

● **Looking-ahead:** Some programs show you in 'real time' on the screen the moves the computer is currently considering, together with anticipated replies.

● **Score-sheet:** The program should display, in algebraic notation, all the moves made so far in the game.

● **Position evaluation:** A nice additional touch, but not exactly crucial, is an ability to display the program's current estimation of the position (ie whether it is more favourable for black or for white). This is usually done in terms of fractions of a pawn (on the traditional basis that a queen is worth 10 pawns). *Fig 1*
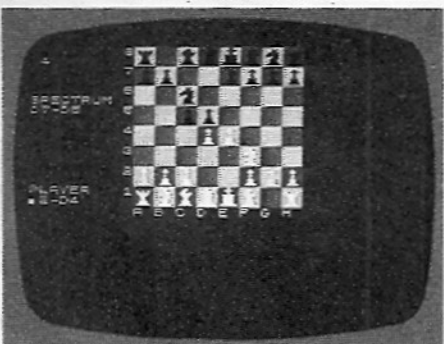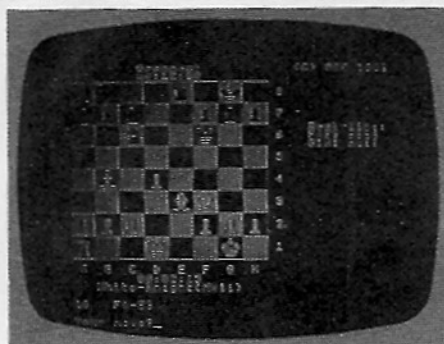
A variety of board styles on screen — which do you prefer?

the facility to play tournament chess, since you can program time control information into it and it will apportion its thinking time accordingly.

Spectrum Chess II

Artic Computing has three different programs available for the Spectrum, and a couple more for the ZX81. Spectrum Chess II drew with White Knight and Cyrus 2.5 and beat a couple of the weakest programs in the tournament.

I've already mentioned the small display board, which I don't fancy. But this fault is shared by its main rival, Intelligent Software's Cyrus IS Chess. One of its oddities is that you are asked to choose, once the program has loaded, whether you want to play a game or analyse a position. This doesn't stop you from changing your mind later on, since pressing 'S' during a game will allow you to reverse your decision.

The 'manual', to call it that, is only the inside folder in the cassette case. But a big plus is that you can save a game to tape or print a copy of the board at any time to the ZX printer. The program's playing strength is selected by telling it the time, in seconds, for the game.

Artic also offers, as a novelty, a program called Spectrum Voice Chess. As you might expect having the moves 'spoken' takes up a significant amount of processing power which could better be used to find decent moves, so Voice Chess is somewhat weaker than its stable-mate. But if you like novelty, it's cheap enough to be worth a whirl.

One of the disappointments of the tournament was that the peculiarities of

the pairing system prevented a meeting between Spectrum Chess and Cyrus IS Chess. Not that one game would have been enough to decide which was the stronger program, but it would have been interesting. One thing to be said though is that the Cyrus program had its moment of glory when it beat the Novag Constellation.

Neither of the two rival programs has a built-in chess clock to display the time elapsed. But the Cyrus program does have the huge advantage of a proper, 22-page manual. It has eight skill levels and the tape comes with both a 16k and a 48k version of the program. The 48k program has a fair-sized openings book. Nearly all the features mentioned in the table (Fig 1) are available.

Spectrum owners are spoilt for choice when it comes to chess. Both Psion and Quicksilva have programs on the market. Quicksilva, incidentally, decided not to enter the tournament since it reckoned that its program concentrated on providing features rather than playing strength. Make what you will of that, but remember,

if you are an occasional player or a beginner, nearly all the programs available will be able to outplay you.

Oxford Computer Publishing (OCP) recently released a program called Chess — The Turk, which it claims is a state-of-the-art product. The Turk comes in a box with its own manual and has a built-in chess clock. Interestingly, it makes use of this to offer a 'blitz chess' feature which sounds attractive. OCP are confident enough in the product to include a special feature which enables you to tell the Turk to remove its queen before the start of play!

One could go on and on. Audiogenic has reasonable programs available for the Vic-20 and the Commodore 64. Atari owners can choose between the old Sargon program or the Larry Atkin progam, Chess. There are chess programs for the Oric, Tandy and even for the Mattel Intellivision. Whatever your machine, someone somewhere has probably written a chess program that will run on it. You won't have far to look and it will probably
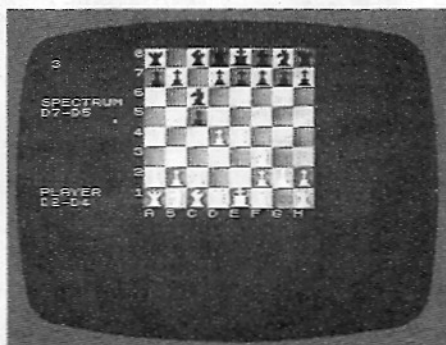
Artic's strongest chess game
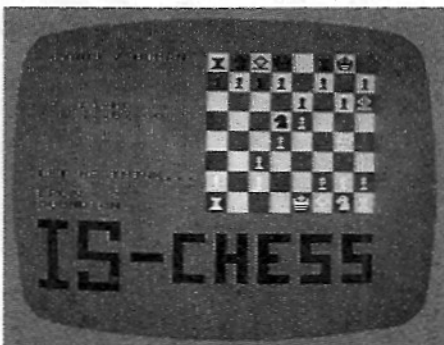
Cyrus IS has many good features

turn out to be a better buy over time than any number of arcade games!

White: Cyrus Dragon
Black: White Knight

Cyrus Dragon didn't have too great a tournament, for the reasons we have already mentioned. So the following game, against the BBC's White Knight Mk11 must be regarded as one of its successes. Though to be fair, you have to admit that the Beeb really shot itself in the foot by pioneering a line in the French in which Black tries to strangle himself in 10 moves.

Once Black found out how to untie himself from knots all of his own making, the two programs found some interesting combinations. Unfortunately, neither of them found a way of exploiting any of the other's weaknesses, and they wound up in a bishop versus knight ending that was beyond either's comprehension. The resulting draw was inevitable and both programs' operators seized the first opportunity to agree a draw on behalf of their machines.

1 e2-e4 e7-e6	24 a2-a4 c6xd4
2 d2-d4 b8-c6	25 c3xd4 d7xb5
3 b1-c3 d7-d5	26 a4xb5 d8xd4
4 f1-b5 g8-e7	27 d1xe2 e8xe7
5 c1-g5 a8-b8	28 e1-d1 d4xd1+
6 g1-f3 h7-h6	29 e2xd1 g8-h8
7 g5-h4 g7-g5	30 d1-d2 f6-g5
8 h4-g3 f8-g7	31 d2-d8+ h8-g7
9 e1-g1 c8-d7	32 c2xf5 e7-f7
10 f1-e1 d5xe4	33 d8-d3 f7xf5
11 c3xe4 e7-f5	34 g3xf5+ e6xf5
12 c2-c3 a7-a6	35 d3xf5 g5-d8
13 b5-d3 f5xg3	36 c4-e3 h4-g5
14 e4xg3 e8-g8	37 f5xg5+ d8xg5
15 a1-c1 g5-g4	38 e3-d5 g5-d8
16 f3-d2 d8-b4	39 d5-f4 g7-f6
17 d2-c4 h6-h5	40 f4xh5+ f6-g5
18 d3-e4 b8-d8	41 h5-g7 g5-f6
19 b2-b4 f8-e8	42 g7-h5+ f6-g5
20 c1-b1 f7-f5	43 h5-g3 g5-f4
21 e4-c2 g7-f6	44 g3-h5+ f4-g5
22 b4-b5 a6xb5	45 h5-g7
23 b1xb5 b7-b6	

Draw by repetition of moves. Half point each.

White: Cyrus IS Chess
Black: Novag Constellation

This next game occurred in the fifth round. Cyrus IS Chess actually beat the Novag Constellation in this encounter. When you consider that the Constellation finished third overall, with six out of nine points, it shows that the win was no mean feat — though the game itself will never be remembered as a masterpiece.

It would have been more convincing a win if the Novag had not transgressed the time limit. I am not at all sure that Cyrus would have found the win by itself. Its last half-dozen moves are definitely mindless woodpushing. But the program played very well to get into this final position, so let's take nothing away from it. The game demonstrates that the home computer programs are able to give the dedicated chess machines a run for their money.

1 d4 Nf6	29 Rc1 Qa5
2 c4 e6	30 c3xb4 Qxb4+
3 Nc3 Bb4	31 Qc3 Qxa4
4 a3 Bxc3+	32 Qxc6 Qxc6
5 bxc3 O-O	33 Rxc6 Rb8
6 f3 d5	34 e6 Rbe8
7 cxd5 exd5	35 f5 a5
8 Qd3 Re8	36 Ra6 a4
9 Bf4 Nh5	37 Ke2 a3
10 Bg3 Nxg3	38 Rxa3 Rc8
11 hxg3 f5	39 Ra5 Rd8
12 f4 b6	40 Kd3 Kf8
13 Nf3 c6	41 Kd4 Rb8
14 e3 Ba6	42 Kxd5 Rd8+
15 Qd2 Bxf1	43 Ke5 Rde8
16 Kxf1 h6	44 e4 Rf7
17 Qd3 Qf6	45 Kd5 Rd8+
18 Ne5 Re7	46 Ke5 Rc7
19 g4 fxg4	47 Rg4 Rdc8
20 Nxg4 Qd6	48 Rd5 Re8
21 Ne5 Nd7	49 Rg6 Kg8
22 a4 Nxe5	50 Rd3 1-O
23 dxe5 Qc5	
24 g4 Rf8	
25 Ke1 Rfe8	
26 Rh5 b5	
27 g5 hxg6	
28 Rxg5 b4	

Black lost on time. But his position scarcely looks promising. Is there a possible draw here? I doubt it . . .
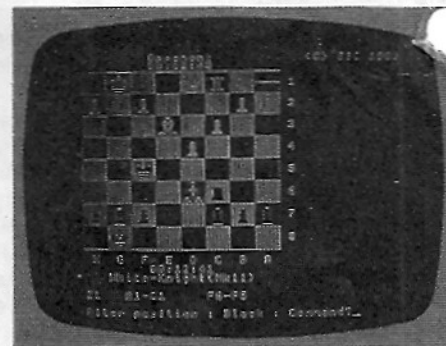

Cyrus slips while being filmed

White: Spectrum Chess II
Black: White Knight Mk 11

The following game, played between Spectrum Chess II and White Knight Mk11, might have been interesting if the two machines had not settled for a grandmasterly draw after 21 moves.

But having decided to castle long despite the fact that his queen-side pawns had left their posts, white really had little choice but to accept black's kind offer of a draw.

1 c2-c4 b8-c6	12 h2-h3 c8-f5
2 b1-c3 e7-e6	13 O-O-O a8-c8
3 g1-f3 g8-f6	14 b4-f4 f5-d7
4 d2-d3 d7-d5	15 f4-h6 d8-b6
5 c1-g5 f8-b4	16 h6xh7 g8-g6
6 c4xd5 b4-c3+	17 h7-h8+ e8-e7
7 b2xc3 e6xd5	18 h8-h4 e7-e8
8 d1-b3 c6-a5	19 h4-h8+ e8-e7
9 b3-b5+ c7-c6	20 h8-h4 e7-e8
10 g5xf6 g7xf6	21 h4-h8+
11 b5-b4 h8-g8	

White Knight: a chance to change