REVIEW
CHESS COMPUTERS

Whether you want inventiveness, strong positional play or sheer tactical virtuosity from your chess machine, John White will help you choose.

THE APPLIED Concepts Sargon and the Challenger programs from Fidelity have always shared a similar style, even before the Spracklen husband-and-wife team joined Fidelity — Dan and Kate Spracklen were the brains behind the Sargon 2.5. On the other hand, different minds have clearly been at work for the Hong Kong-based company Sci-Sys.

The best program to run in the Sci-Sys Chess Champion V was created by the U.K. software company Philidor whose directors include the chess writers David Levy and Kevin O'Connell. This Philidor program was originally written in Z-80 code, but has been translated into 6502 code for the Chess Champion V. Like Morphy, Philidor is supplied as a module, to be exchanged when better versions are available.

Strategic ability

A special sensor board — which I understand does not operate by touch — will be available, together with a printer for a permanent record of the game. The program occupies some 24K of ROM.

The Chess Champion V recognises draws by stalemate, three-fold repetition or under the 50-move rule. Interestingly, it will also give its assessment of a position and offer or accept a draw accordingly. Unlike Morphy and Champion Sensory Challenger, Philidor claims to have implemented new ideas on move evaluation which result in greater consideration of any part of the game tree — which is what a human player tends to do — and new, still-secret methods of effecting fast, strategic evaluation. The Chess Champion V is claimed to be the first machine of any type capable of making strategic assessments of a position, as opposed to purely tactical considerations. If is, therefore, the first computer capable of forming comparatively long-term plans, the lack of which has plagued all previous commercial models.

Extraordinary claims have been made for the Chess Champion V; that its play exceeds a rating of ELO 1,900 or BCF 163, at an unspecified level. It has also done well against other chess computers — it won the September

move. However, the design of the pieces leaves much to be desired.

As far as I can tell by testing, the Chess Champion V's strategic evaluation consists of advancing pawn masses, either majorities against minorities or against the castled enemy king, and of moving pieces into lines of attack against this king. Evaluation is performed at considerable speed, and is a creditable achievement. Such planning gives the machine an advantage over its fellow chess computers, and its strategic play makes many games look brilliant.

Play a test game

Like other machines the Chess Champion V likes to sacrifice its knights for enemy bishops early in the game. It is also prone to suffering from doubled pawns. The end-game play is interesting. The pawn masses are advanced with considerable skill but the king is perhaps less active than it should be.

Chess Champion V is the most interesting of the major three chess computers, and plays in a style most like that of a human. Its many user features are well conceived and will have wide appeal. The price of the main unit is £280, and the sensor board will cost some £155.

Those with about £300 to spend should decide whether they want to play against an inventive opponent — Chess Champion V — a positional opponent — Morphy — or a tactical opponent — Champion Sensory Challenger. I should strongly advise you to test your choice before parting with the money.

There are two other very strong chess computers, but neither can be obtained in the U.K. They are the Savant from the Hong Kong-based Novag company, and the Mephisto which has been available in the rest of Europe for some time now without reaching these shores.

The Novag range of Savant and Sensor IV was to have been imported into the U.K. by the importers of Grandstand Leisure products, but the company achieved only limited success with the bottom-of-the-range Novag Microchess, and now the other two may not be imported at all — despite plans for a launch in 1982. The Savant uses the Mychess program, a version of which — rated at ELO 1,615 — is also available for the Apple computer.

Sensory boards eliminate the need for players to key in moves, and three of the major manufacturers have entered the large £50-£100 market with suitable models.

The £55 Sensory Mini Challenger from Fidelity is designed as a travelling companion with pegs for playing pieces, battery operation — AC is an optional extra — and a sensory board. The program is on a replaceable module. Other modules to be released include Advanced Chess, Popular Book Openings and Chess Master Games, as well as checkers and others. The original module includes random selection between moves of equal merit. There are no true book openings, but the machine will give different opening moves.

The Mini Challenger has four levels of play — the fourth is of indefinite duration for problem solving. The third level takes 60 to 100 seconds per move, at which speed the standard of play is surprisingly good for such a low-priced machine. The sensory board also works well. This is an attractive machine, which will demolish most of the others available at this price.

Conceptually similar, Novag's £80 Microchess has a 4K program with seven levels and an eighth, indefinite level which uses iterative deepening. The program is not on a replaceable module. The unit is beautifully built, and the machine also features a memory for storing uncompleted games for up to a week — useful if the train reaches the station too quickly.

Sci-Sys has entered the market with the £80 Sensor Chess, another 4K program with eight levels, a small, randomly-selected book-opening library and a program on a replaceable cartridge. Replacement cartridges include Strong Play, Extra-strong Play and Hypermodern in the chess field.

Sci-Sys has also released Graduate Chess at £35 — a travelling game without a sensory board — and Executive Chess at £90 — a 4K program developed around a large liquid-crystal display device which serves as a pocket
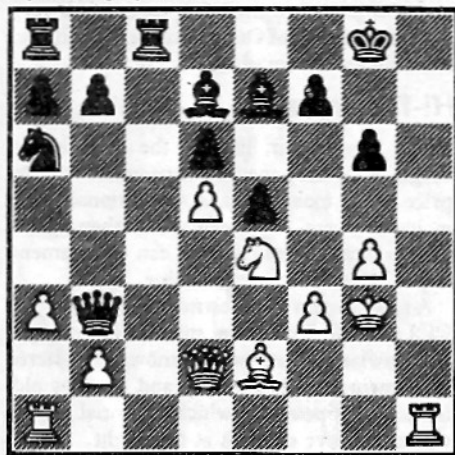

Figure 1.

chess-board. Tandy's £35 Graduate Chess and £50 Chess Machine appear to be replicas of the Sci-Sys Graduate Chess and Chess Traveller; Dixon's Chess Machine also bears a strong resemblance to the Chess Traveller.

The Fidelity £360 Decorator Challenger consists of a slightly-upgraded version of the older Voice Challenger, now in a very decorative housing.

The eight-level Chessmate from Commodore at £60 consists of a stand-alone unit — the user supplies his own chessboard — with touch-sensitive buttons and 32 book openings of 16 moves each. The standard of play is poorer than that of the other newcomers, and on a par with the £60 Boris Diplomat II which replaces the older Diplomat and is designed as a travelling companion.

The £1,500 Boris Handroid contains the Sargon 2.5 program in an amazing device consisting in part of a robot arm, which moves the pieces for you, and a sensory board. Since the improved Morphy program is available in the Encore machine from the same manufacturer at about £180, you will be paying considerably more than £1,000 for the dubious privilege of having a machine make slightly inferior moves, although the Sargon 2.5 is still a very strong program.

1981 World Micro Championship in West Germany in the commercial section.

Chess Champion V plays at as fast a pace as Sargon or Champion Sensory Challenger it is unquestionably one of the new generation of super-fast chess computers. In the position shown in figure 1, it found the move a6-c5 within 1.5 minutes — an excellent response in a difficult position. It also retains the tactical ability of the other machines to a large extent, but is not so brilliant at high-speed combinations as the Champion Sensory Challenger, or as capable of tying its opponent into positional knots as Morphy. Automatic moves, where only one move is legal, are made at once.

Cursor confirmation

The Chess Champion V possesses a considerable book-opening library from which the opening is randomly selected. Other facilities include the ability to find mate-in-seven problems, to play up to 12 games at once, to retrace moves, to think during its opponent's time and to give prompts to its opponents.

The entire unit has a very pleasing appearance. Moves can be entered by pressing buttons or by a novel method which involves moving a cursor over pieces visible in a built-in, supplied liquid-crystal display board. This provides constant confirmation that you and the machine are thinking about the same

The £80 Partner 2000 is another Sci-Sys machine with a sensory board but you have to press Enter after making the moves and must read the machine's response from a display. Castling and *en passant* require special attention. This 4K program chooses randomly between a very limited opening library.

Sci-Sys seems determined to flood the lower end of the market with 4K machines, and one must compliment the designers on their achievement in packaging so much into so little. Nevertheless these machines are probably best suited to beginners. In my opinion, Partner 2000 is rather weaker than the older and comparably-priced Chess Challenger 7, although that needs 32K of ROM.

Much better is the new £120 Super System IV, a revised version of the older Super System III. The new model, like the old, has provision for an optional liquid-crystal display board at £75 and a £75 printer, but there is no sensory board. Unlike its predecessor, the System IV has a reasonable book-opening library, 12K of ROM and the program is supplied on an upgradeable module. A very powerful version of Othello, or Reversi, is also available for this machine.

Hi-fi converts

The whole unit, like all the new Sci-Sys range, has a very modern appearance and the price of the main unit and the optional extras is, in each case, significantly less than that of the earlier equivalents. I can recommend Super System IV as good value.

A new name is the Westrak Chess Computer CC1 at £130. This bulky machine is imported by Howland-West, better known for stereo equipment, and has a solid and perhaps old-fashioned appearance which potential buyers will either love or loath at first sight.

The playing pieces each have long jack-plugs protruding to operate the sensory board — a technique which works very well. There are 12 levels in all, of which the first six have response times of between 30 and 60 seconds, and the other six of between nine and 15 minutes. The machine also features plenty of loud beeps.

The CCA possesses no book openings, but the standard of play even at the lowest level is satisfactory — although not as good as the Sensory 8 — and clearly contains some original thinking in the evaluation function. The king does have an unfortunate tendency to wander during the mid-game. Overall, then, it is an unusual and distinctive machine.

A number of new releases have been made in software for personal computers. There are at least three for the Sinclair ZX-80/81 with 16K expansion. Z-Chess and Chessmate 80 have become available for the Tandy TRS-80 and there are several others. Those few which I have seen pay more attention to the quality of their graphics than of the play, and some set a nadir by which to judge all others. At least one employs no look-ahead even at the top level, and kindly formed up all its pieces for my rook to take them.

Software packages

Among four stronger programs held in software, some of which approach the strength of Morphy Champion Sensory Challenger and the Chess Champion V, is Gambiet 80. This program requires 10K for a Tandy TRS-80 and has a good record against other chess computers. It is distributed in the U.K. by MicroTrend. Mychess has a rating of USCF 1,615 — about BCF 127 — and is available for the Apple, but I believe that it can only be purchased in the U.S.A.

PetChess was written by Philidor Software especially for ACT/Microsoft for the Pet 3000, 4000 and 8000 series. My review tape occupied almost the entire memory of a 32K 8032 Pet and, for the first time, I realised the privations of those who have to load tapes at 300 baud, although a disc version is also available.

PetChess is claimed to offer more facilities than any other chess software. Setting up positions is exceptionally easy and so is retracing moves. There is, however, no hint button to tell you what to do on your move. An audio alert is also available for the 8000 series. There are 12 levels of play from five seconds to 40 minutes. The graphics are very easy to understand — by way of a change — and the program seems to be crashproof.

There is a substantial book-opening library of 3,700 moves, although whether a computer should play the dubious von Hennig-Schara gambit is open to doubt. Moves may be taken back to the beginning and an action replay is available to repeat moves.

The program uses iterative deepening for its moves and the best move yet found is constantly displayed, as is the move under consideration, and the player can halt the machine's thinking at any time. Moves are not randomly selected — except in the opening — instead the player can select the next best move and play on from there. Draws under the 50-move rule, stalemate or three-fold repetition are also recognised.

The entire program and its style of play is reminiscent of Philidor's Intelligent Chess, although there is a greater emphasis on pawn moves. The evaluation function is evidently very sophisticated, but it takes a long time to search at the lowest levels. It seems that subsequent levels are only sketchily evaluated, and the program rarely changes its mind about a move found at the lowest level. As a result, PetChess falls into simple traps at these levels — up to one minute, which covers half of the available levels — because of its inability to see far ahead.

At higher levels, it avoids the traps, but tends to exchange everything it can. Like so many programs, it likes to exchange its bishops for knights early in the game, and it also prefers to double its pawns rather than move its queen before castling — I detect Levy's hand.

PetChess shows some evidence of strategic thinking in moving pawn majorities against minorities or in moving major pieces into attack positions against the enemy king. This, again, shows the thought that has been into the evaluation function. The end-play is, however, rather weak, and the king seems to be a little passive.

PetChess is not as strong as the Sargon II cassette program, which in any case is not available for the Pet in this country. PetChess is certainly the strongest chess program for the Pet available in the U.K. and is good value at £25. Despite my criticisms, I gained a great deal of enjoyment from PetChess and can recommend it to Pet chess players of club standard.

Old standbys

Artic Computing's £15 ZX Chess II is available for the Sinclair ZX-81 with 16K RAM. There are seven levels, searching up to 12 ply ahead. Level 4 — average response time three minutes per move — considers eight ply ahead. The program occupies some 9K of RAM and incorporates a limited book-opening selection. A larger library and random responses may be added at a later date. The graphics are rudimentary, which I regard as an advantage.

Several TV chess games have become available. These include games for the Interton, Atari and Mattel programmable TV units, and for the new Tandy Colour Computer. I have been unable to steel myself to play these after earlier experiences with the dreadful play and incomprehensible graphics of some of their predecessors. Prices are in the range £15 to £50.

Finally, we must not forget some of the older, but still excellent, chess programs which are available. The Fidelity Sensory 8 is highly commendable at £130 — it is the Challenger 7 with a superb Fidelity sensory board. Although not as fast or as strong as Morphy, Champion Sensory Challenger and the Chess Champion V, it still holds its own against most of the others mentioned in this survey, although it is rather let down by its weak end-game play.

The Sargon II is available on cassette or disc for many home computers at between £15 and £30 and remains one of the most powerful in software. Like all Spracklen-designed games, its end-game play is excellent. ∎

CONCLUSIONS
- ■ The Chess Champion Mark V is an excellent machine where much attention has been made to user extras.
- ■ It exhibits some understanding of strategic play. Its tactical play is weaker than that of the Champion Sensory Challenger at equal response times.
- ■ It is cheaper, at £280, than the other two main competitors.
- ■ I can confidently recommend the machine — but do not expect play equivalent to more than ELO 1,900.
- ■ The £120 Super System IV is good value. The optional extras are also relatively inexpensive.
- ■ Pet Chess at £25 is good value for Pet owners with 32K.
- ■ The latest down-market sensory chess machines all play reasonably well. Of these, the Mini Sensory Challenger is superb value at £55.