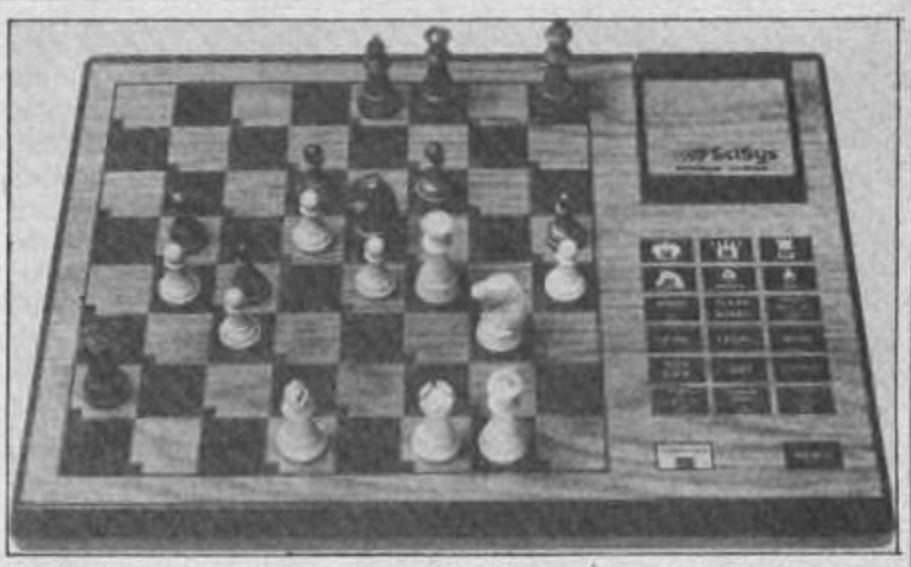
Check-mate!

***John White** looks at some of the latest chess machines and compares them with the "Big Three".*



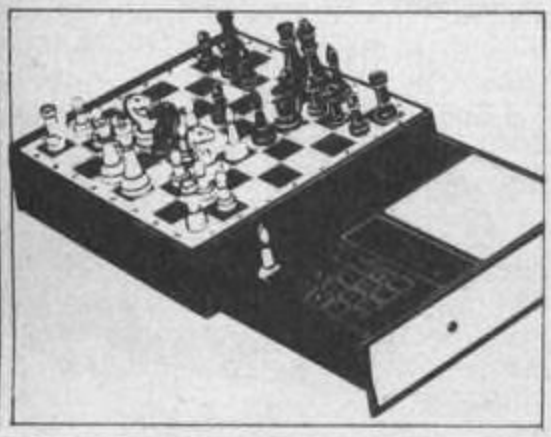
In March 1982, the Silica Chess Computer Symposium pitted two teams of human players against the best chess computers that were then available, the *Champion Sensory Challenger*, the *Chess Champion Mk V* — Philidor program — and the *Great Game Machine* with Morphy, Grunfeld and Capablanca cartridges. The *Champion Challenger* performed best, with a British Chess Federation grading of 133, the others obtaining a highly respectable grade of 122-124. An *Elite Challenger* also made a brief appearance — it did not play enough games for a grading, but scored an amazing 70 per cent success rate in five games.

Since last March, a number of new chess machines have been launched to challenge the dominance at the top end of the market of the "Big Three" machines for playing strength.

The *Mephisto II* is manufactured by the German company Hegener and Glaser and is a continuation of the older model I. *Mephisto* was launched in a blaze of publicity suggesting that it was the strongest machine on the market, a claim essentially based on games between itself and other computers. The basic price is only £200, although it is also possible to plug the machine into an electronic sensor board for an additional £250.

The *Mephisto* unit is well constructed and offers all the normal facilities that one expects these days, including a book opening library. In addition, the machine will randomly select between moves of roughly equal merit, has a quiet beep tone and permits memory storage of positions, using battery or mains operation. There are seven normal playing levels, which take from a few seconds to 20 minutes, a deep search for postal chess and a special mate-finder, which can find mates in up to five moves.

The program "thinks" while its opponent is making his move, and can provide hints for human players. *Mephisto* is undoubtedly one of the new generation of "superfast" chess computers. It searches to a depth of four half moves at tournament speeds, searching deeper into some lines and in the end-game. A minor omission is the "chopper" mechanism which ensures that automatic moves — ie, where only one legal move exists — are made at once. *Mephisto* examines all the consequences of its one move before making it.



Mephisto contains 280 opening lines. This compares with the 490 lines in the latest Grunfeld opening cartridge used with the *Morphy* program, or the nominal 64 opening lines of the *Champion Challenger;* the actual number of lines depends on how you count the sub-variations. *Mephisto's* openings can be selected in a somewhat tedious manner (it is easier with Grunfeld or CSC), and the opening lines are mostly traditional ones, rather than the odd lines found, for example, in the *Champion Mk V*. Overall, the opening library is good, and the sensor board adds a further 40 lines.

Mephisto's tactical play is very strong. It passes my standard test positions with flying colours, with one of the best scores I have yet recorded. These tests measure the effectiveness of the operating system, and the speed and depth to which the program looks in mid and end-games.

Mephisto's mid-game positional play is somewhat suspect; probably the evaluation function needs improvement. It made some weak moves at tournament speeds, including some inane king moves. *Mephisto* is also prone to suffering from isolated doubled pawns, a severe strategic weakness.

Mephisto is unusual in preferring bishops to knights — Morphy is the only other major program with this preference. The others prefer to swap their bishops for enemy knights; in the case of the *Challenger,* generally at the first opportunity.

Mephisto generally performs pretty well in the end-game, being a little better than the Morphy end-game and a little worse than Capablanca. *Mephisto* cannot win the standard king-bishop-knight versus king ending; as far as I know the *Champion Mk V* is the only program which can.

In tournaments against humans under the standard conditions of the Silica Chess Computer Symposium, *Mephisto* has done much less well then the "Big Three". But it can still be recommended as a very strong program at a moderate price.

After various tribulations, the Hong-Kong based Novag's products are now distributed in the UK by Studio Ann Carlton, who also handle the *Great Game Machine*. The present Novag range consists of *Microchess*, a small portable machine, the *Sensory IV*, an 8K program very similar to the Sci-Sys *Sensor Chess*, and the top of the range *Savant*.

The *Savant* uses a 24K program, developed from the American David Kittinger's famous *Mychess* program, with 4K of Ram for calculations. The central CPU is a Z80A running at 6MHz, faster than any of its competitors.

A very important feature is the unit's large, touch-sensitive, LCD chess board. All the pieces are displayed under a piece of clear plastic. Touching the location of any piece and a second square will move the piece to that square.

On the sample I tested, this worked very well, but I noticed two disadvantages. First, the human has to hunch over the display to avoid parallax problems in seeing the pieces. Secondly, light shining in from a window may obscure part of the screen.

The *Savant* offers all the standard features expected of a modern chess computer. It can search to a depth of 14 ply at the highest levels and gives good results playing at normal tournament speeds. There are 10 levels of play, with random selection between moves of equal merit.

"Thinks" while it is waiting

The *Savant* "thinks" while it is waiting for its opponent to move and can give hints as to what you should do. Other features include a *Cmos* memory, which will store moves without a power supply for up to three months — the *Savant* can demonstrate "Classic Games" played by grandmasters similar to the "Great Games" offered by the *Champion Challenger.*

The book opening library is quite good with 850 moves — although not in the same class as its main competitors — and the program will find forced mates in up to seven moves. Optional extras include a chess printer for the moves and a quartz chess clock which will also serve to monitor play between two humans.

The standard of play is very good, but,

like *Mephisto II*, not quite in the same class as the "Big Three". In fact, the *Savant* is also a little weaker than *Mephisto*, and is therefore the weakest of the "First Division" chess computers. In the end-game, the *Savant* permits pawn promotion to a knight as well as to a queen, unlike most of its competitors.

At £400 it is difficult to recommend the *Savant*, unless you are keen on the touch-sensitive LCD board. Readers should note that an earlier and weaker version of the *Mychess* program is also available for the Tandy and Apple microcomputers.

Sci-Sys W's *Sensor Chess* — £90 — consists of a 4K program in a replaceable Rom module, fitted into a sensory board with a fast 6502 microprocessor. Designed by the American Master Julio Kaplan, it offers eight levels of play, one of which solves mate in up to four move problems. The top normal playing level is level five, which takes an average of 2-3 minutes per move, although captures tend to be much faster. It is very likely that the program uses a different operating system to that employed by the other programs, only sketchily evaluating the higher levels after a detailed evaluation at the lowest level.

Pawn promotion can be to any piece and the machine recognises draws under the three-move repetition and 50 move rules. Most of the normal chess computer facilities are offered, but a timer is lacking, as is a move counter, an indication of the move the machine is thinking about and the ability to think on the opponent's time.

The basic module has no book openings, but will choose randomly between a few different opening moves. The module is rather a good one and its end-game play, although not outstanding, is superior to that of many similar-priced competitors. The advance of pawns is quite accurate throughout the game and the king becomes very active at the end.

The play can be improved by purchase of replacement modules. At present, these include *Hypermodern* and *Classical* — £20 each — and *Strong Play* — £15. The first two contribute a variety of shallow book openings and slightly alter the style of the play of the basic module, but otherwise there is little difference.

Strong Play, however, is a 6K program which contributes a series of book openings and greatly improves the end-game play. This module is a marked improvement over the other three and represents the strongest play presently available from a machine up to £120. It has been claimed to be as strong as the Morphy program, standing alone in the Morphy Encore, on the dubious basis of games between them. This claim is not substantiated by its performance in my tests and by play against me; Morphy is markedly stronger.

During play, *Strong Play* is somewhat prone to suffering from doubled pawns and resembles Morphy in its preference for bishops over knights. It cannot win the standard king-bishop-knight versus king ending, but deals comfortably with a king-rook versus king ending.

The sensor board of *Sensor Chess* is quite sensitive, but slow to react. Overall, *Sensor Chess* with *Strong Play* module must be accounted very good value indeed at £105. A good "second division" program.

The *Elite Challenger* is a magnificent Fidelity-Spracklen (Sargon-derived) program, very similar to the *Champion Challenger* but running at twice the speed with a 4 MHz 6502B CPU. Physically, the machine also closely resembles the *Champion*, except for the *"Elite"* logo, a few more book openings and a slightly improved program. The *Elite* scored a 70 percent success rate in the Silica Symposium against human players graded at BCF 110-160. But — the price at £680 is ridiculous.

Lacks the infamous Fidelity voice

The *Elite* was always in limited supply, and is now set to be overtaken by Fidelity's new *Prestige Challenger* at £860 which employs the superb auto response board — a hand-crafted wood unit — with an updated *Elite* program. The *Prestige* uses a 6502C microprocessor. I do not have space for all its features, but they are very comprehensive, and the program is modular so that it can be improved in the future. An interesting feature of the new *Prestige* program is its dynamic reassessment of the relative values of knight and bishop as the game proceeds.

The existence of Fidelity's *Challenger 9* makes the price of the *Elite* even more absurd. At only some £160, a program virtually indistinguishable from the *Elite's* has been coupled with a sensory board and a 6502 CPU to give the *Challenger 9*. This machine plays much the same as the *Champion Challenger*, with a slightly improved program and with a good book opening library, which can be increased by inserting extra plug-in modules. But it lacks the infamous Fidelity voice found on the more expensive models.

The *Challenger 9* undoubtedly offers the best strength play for the least price of any machine presently on the market; it has no real weaknesses. Potential buyers should note that *Challenger* programs tend to be the most obviously machine-like of chess programs, as well as the strongest. In a quiet position, the program will often just move a piece backwards and forwards. However, their tactical play is second to none and the end-game play of all Spracklen-designed *Challenger* programs is outstanding.

Conclusions

★ The *Prestige Challenger* is the strongest on the market. At £860, it can only be recommended to millionaire grandmasters.

★ The *Champion Sensory Challenger* is still one of the best machines available. At £330, the purchaser gets a sensory board and the Fidelity Voice.

★ The *Challenger 9* is outstanding value at £160. It lacks the voice of the *Champion* and also has no chess clock.

★ Sci-Sys W's *Chess Champion Mk V* — £280 — remains a very strong machine, and a new *Mk VI* program is available for existing purchasers on a replaceable cartridge.

★ The *Great Game Machine* with upgraded opening and end-game modules is still one of the top machines, but rather pricey at around £470.

★ The *Mephisto II* — £180 — is good value at the price, but weaker than the machines above.

★ The Novag *Savant* — £400 — has a touch-move board display, but is rather expensive for the standard of play.

★ Sci-Sys W's *Sensor Chess* with *Strong Play* module is excellent value at only £105.