

# FORTH

A full, extended FORTH interpreter/compiler produces COMPACT, ROMABLE code. As fast as compiled FORTRAN, as easy to use as interactive BASIC.

## SELF COMPILING

Includes every line of source necessary to recompile itself.

## EXTENSIBLE

Add functions at will.

## CP/M\* COMPATIBLE

**Z80 or 8080 ASSEMBLER included**

Single license

Supplied with extensive user manual and tutorial:  
\$150.00

Documentation alone: \$25.00

OEM's, we have a deal for you!

CP/M Formats: 8" soft sectored,  
5" Northstar, 5" Micropolis Mod II,  
Vector MZ, TRS-80 Mod II

Please specify CPU type.  
Z80 or 8080

### All Orders and General Information:

**SUPERSOFT ASSOCIATES**

P.O. BOX 1628

CHAMPAIGN, IL 61820

(217) 359-2112

Technical Hot Line: (217) 359-2691

(answered only when technician is available)



**SuperSoft**  
First in Software Technology

\*CP/M registered trademark Digital Research

## Product Review

# Sargon II

## An Improved Chess-Playing Program for the Apple II

John Martellaro  
2929 Los Amigos, Apt B  
Las Cruces NM 88001

The advertising literature for Sargon II quotes a magazine article: "Buy this program when it becomes available. . . ." My reaction: the program is available; buy it. Sargon II is everything Sargon I should have been. It is a mature effort. The program is clean, strong, and debugged. Nearly every deficiency of Sargon has been corrected:

- Sargon II has book openings.
- Sargon II recognizes stalemates.
- The levels of play are geared to clock time instead of ply search. As the pieces disappear, the ply search goes deeper, keeping the *time* relatively constant.
- Setting up a board position is easier.
- The program shows the move it is thinking of making. It will suggest a move for you.
- The graphics are new and very handsome.
- There is the much-asked-for asterisk prompt to indicate that the program is thinking.
- Every check is logged on the screen.
- Move entry is easier, but still not as easy as in Microchess 2.0.
- The playing strength is vastly improved.

Sargon II plays well. I play at an unofficial 1700+ United States Chess Federation (USCF) rating and have never lost a serious chess game to any microcomputer program (Boris 1978, Microchess 2.0, Sargon I), but I lost the first two trial games against Sargon II — mostly from being taken by surprise at its unwillingness to be bullied. Carelessness? Impatience?

After this appalling result, I promptly invited two friends over. They have official USCF ratings of 1650 and 1714, and the former player is extremely familiar with the openings.

We set Sargon II at level 3, the highest level that makes moves in tournament time. By our combined efforts, we cleaned Sargon II off the board — mostly by our

familiarity with the standard opening moves.

The 1650-rated player, whose lifetime high rating is 1850, has played every available computer chess game, including large mainframe computers. None has ever survived his "fried-liver attack." [The fried-liver attack involves placing the White King's Bishop on c4 and a White Knight on g5, attacking the weak King's Bishop pawn; or the equivalent setup for Black...RSS] Sargon II fared no better and succumbed in 13 moves.

Convinced now that Sargon II could be beaten, I rolled up my sleeves, got very mean, and again set the program for level 3. After 90 minutes of trekking through a bloody, grim Ruy Lopez opening, fending off a Queenside attack, and using my mobility on the Kingside, I broke through. On move 40, Sargon made a mistake (failure to look far enough ahead), and I blew its position wide open. But for that one mistake, the game would have been a draw.

During the dozen or so games I have played against Sargon II, I have lost only one more game and have made the following observations. Sargon II has much needed and clearly visible improvements over Sargon I. It castles at the most propitious time and actually seeks an opponent's weaknesses and tries to gain tactical advantages.

The pawn play is much improved. Sargon II senses the worth of passed pawns and actively tries to promote them. Sargon I had little use for pawns.

After our three-game "tournament" mentioned above, we set up an endgame position out of curiosity. We took White with King at c1 and pawns at c2, b2, and h2. We gave Sargon II a King at g8 and pawns at g7, h7, a7, and b7. This should be a won game for Black with careful

White (Sargon II)	Black (Three humans, rated 1700 +, 1714, and 1650)
----------------------	--

- |            |        |
|------------|--------|
| 1. e2-e4   | e7-e5  |
| 2. Ng1-f3  | Nb8-c6 |
| 3. Bf1-b5  | Ng8-f6 |
| 4. Nb1-c3  | Nc6-d4 |
| 5. . . . . | d2-d3  |

This looks like a good developing move, but Sargon II needed to play a little more sharply here. 5.Nf3xe5 leads to a much better game for White.

- |            |       |
|------------|-------|
| 5. . . . . | c7-c6 |
| 6. Bb5-a4  | d7-d6 |
| 7. O-O     |       |

It looks safe enough for Sargon II. He has castled and mobilized his pieces by move 7. Sargon I never managed that.

- |            |        |
|------------|--------|
| 7. . . . . | Bc8-g4 |
| 8. Bc1-e3  |        |

A critically weak move. The Black Knight is going to capture anyway. Why not Bc1-g5?

- |            |        |
|------------|--------|
| 8. . . . . | Nd4xf3 |
| 9. g2xf3   | Bg4-h3 |
| 10. Rf1-e1 |        |

An unfortunate move to have to make. If White could have seen what was in store, he might have abandoned the Rook and moved the King to h1.

- |             |        |
|-------------|--------|
| 10. . . . . | Nf6-h5 |
|-------------|--------|

This clears the way for the Queen. An important move in the attack.

- |            |  |
|------------|--|
| 11. Qd1-d2 |  |
|------------|--|

A clever and amusing trap by White. If we had played 11. . . . Qd8-h4 to pour it on, then 12.Be3-g5, and we lose our Queen. We very nearly fell for it. So far, Sargon II has played like an intelligent, but inexperienced, player. This is the first "trap" I have seen set by a microcomputer chess program.

- |             |        |
|-------------|--------|
| 11. . . . . | Qd8-f6 |
|-------------|--------|

But at the last second, we don't fall for the trap and attack the weak pawn at f3 instead.

- |             |  |
|-------------|--|
| 12. Nc3-d5? |  |
|-------------|--|

A desperation move; White ignores the weak pawn at f3, but probably saw 12.Qd2-e2, Qf6-g6 check, and is ready to try anything.

- |             |        |
|-------------|--------|
| 12. . . . . | Qf6xh3 |
|-------------|--------|

It's all over now for White.

- |                  |        |
|------------------|--------|
| 13. Nd5-c7 check | Ke8-d7 |
| 14. Ba4xc6 check | Kb7xc6 |

The horizon effect, trying to avoid fate: any human would have done the same.

- |            |                  |
|------------|------------------|
| 15. Nc7xa8 | Qf3-g2 checkmate |
|------------|------------------|

**Table 1:** Score of a game played between Sargon II (with the White pieces) and three humans (with the Black pieces), one of whom is an openings expert. While Sargon lost the game, it went down fighting. This contest shows the style and limitations of the program, which played at level 3. The notation is algebraic.

## Desk Main/Frame Desk Main/Frame

### LOW COST & ATTRACTIVE STYLING

- MAINFRAME INTEGRATED INTO FURNITURE QUALITY DESK
- ELECTRONICS PACKAGE SLIDE MOUNTED FOR EASY ACCESS
- SUPPORTS TWO 8" FLOPPY DRIVES FROM SEVERAL MANUFACTURERS (DRIVES NOT INCLUDED)
- 10 SLOT MOTHERBOARD INCLUDES CONNECTORS
- POWER SUPPLY FOR DRIVES AND CARDS
- DESK AND MAINFRAME AVAILABLE SEPARATELY
- MATCHING PRINTER DESK AVAILABLE



WRITE OR CALL FOR OUR BROCHURE WHICH INCLUDES OUR APPLICATION NOTE: 'BUILDING CHEAP COMPUTERS'

# INTEGRAND

8474 Ave. 296 • Visalia, CA 93277 • (209) 733-9288  
We accept BankAmericard/Visa and MasterCard

# SYNCHRO-SOUND THE COMPUTER PEOPLE

A PERFECT  
SUPER SPECIAL MATCHED PAIR!



Texas Instruments  
810 Multi Copy  
Impact Printer

Intertec  
Super Brain  
Computer Terminal

ONLY \$4295.



Lear Siegler  
ADM 3A  
ADM 3A+



Soroc  
Technology  
IQ 120  
IQ 140



DECwriter IV  
LA34



Okidata  
Microline 80



Northstar  
Horizon II  
Horizon II Quad

Many of our prices are too low to advertise!  
PLEASE CALL OR WRITE

We carry a full line of: ADDS, QUME, TELETYPE,  
CROMEMCO, FLORIDA DATA SYSTEMS, SCOTCH,  
MAXELL, VERBATIM, ALPHA-MICRO, ATARI,  
INTEGRAL DATA, LIVERMORE COUPLERS,  
HAZELTINE, TEXAS INSTRUMENTS,  
DIGITAL MICRO SYSTEMS and others.



## SYNCHRO-SOUND

ENTERPRISES, INC.  
THE COMPUTER PEOPLE

193-25 Jamaica Ave.  
Jamaica, New York 11423  
TWX 710-582-5886

PHONE ORDERS CALL:  
New York 212/488-7067  
Los Angeles 213/678-1808  
Chicago 312/641-3010  
Dallas 214/742-0800

play. At times, Sargon II pushed its look-ahead procedure to level 8. (This cannot be set from the keyboard.)

Sargon pushed its pawns carefully, but blundered by trying to fight on both fronts for too long. The program finally made a critical mistake and allowed us a draw. We wound up with just the two Kings on the board. Curiously at that point, instead of calling a draw Sargon's King started advancing toward our King, perhaps thinking that with a hidden dagger up its sleeve, it could finish us off. Such violence would be a patent violation of chess law.

Sargon II is the first chess program I have seen which has doubled its Rooks on a file with malice obviously intended. It is also the first program I've played that has actually set a trap. Perhaps this is a glimmer of artificial intelligence!

The program will suggest a move for you if you type control-K. You would be wise to ignore this advice if you are an experienced player. Why? These programs play well tactically but with poor strategy. Any suggested move will be devoid of the strategic thought which you, as a human, ought to be applying.

Sargon II may be the strongest chess program you can buy, dedicated chess-playing devices included. I am impressed beyond all expectation. If I were to estimate its Elo rating, I would say it is possibly 1500 at level 3.

However, as with any software product, there are some minor complaints. If you bought Sargon I for \$20, you may flinch at buying Sargon II for \$30 (\$35 on floppy disk). Such a price seems hard to justify, and you would expect that for a \$30 program, the packaging would be a little better. For example, the shell of the cassette I received was the glued-together type, instead of the higher-quality shell with screws.

Also, the instruction book is not what you would expect of a \$30 program. The book was not carefully produced and assumes too much prior knowledge on the part of the user. There is an error on page 4 where it says to type a control-R followed by a Return. If you hit the Return, you'll find yourself helplessly transferred into the monitor, and since the program is locked and protected, you'll have to reload it.

Another possibility for grief lies in the use of a printer to record the game. If Sargon II changes its decision about a move, it will overwrite the previous move. This works fine for a video display, but on a printer there would be a blob after two or more move changes.

About the only other request you might make of Sargon II is to have the listing of the entire game in memory instead of letting lines scroll off the top of the screen. Often a user gets too busy playing to record the game by hand. Not everyone can afford a printer; but this is a minor affair.

In summary, Sargon II is about all we computer chess players could wish for in 1980. No doubt, stronger programs will be written (Sargon III is still in an experimental stage), but this one will keep your attention unless you are a wizard in the openings. Dan and Kathe Spracklen are to be commended for a superb implementation on the 6502 microprocessor; in fact, I give them an A+ rating for the implementation. The Spracklens and the Hayden Book Company also get a A+ for correcting the problems in Sargon I, but unfortunately, Hayden gets a C on the packaging. ■

[Next month the author reviews Sargon 2.5...ed]