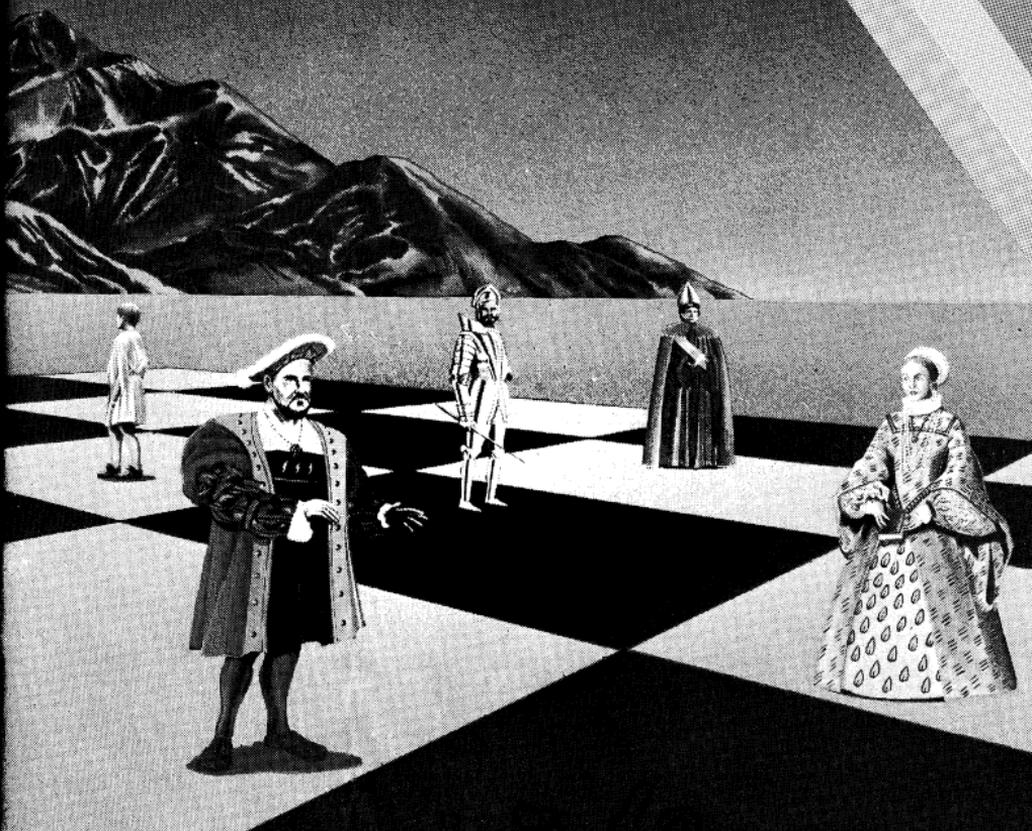


sinclair

ZX Spectrum

CYRUS IS CHESS



SOFTWARE BY

IS INTELLIGENT
SOFTWARE LTD

CASSETTE
—16K/48K RAM

**USER MANUAL
FOR
IS-CHESS**

CONTENTS

1. Introduction	3
2. Loading the program	3
3. Starting a game	4
4. The message area	5
5. Correcting moves	6
6. Special moves	7
7. Result of the game	7
8. Interrupting the computer	7
9. New Game	8
10. Levels of playing strength	8
11. Changing sides — playing both sides — demonstration ...	9
12. Taking back moves	10
13. Replay	11
14. Setting up a position	11
15. Chess problems	13
16. Colour scheme	14
17. Sounds	15
18. Printer	15
19. Tape	16
20. Summary of features	18
21. Summary of commands	20

1. Introduction

The Cyrus program contained on this cassette won a convincing victory in the second European Microcomputer Chess Championship. One side of the tape contains two copies of a version for use with the 48K Spectrum, with many novel features making it particularly convenient and enjoyable to operate. On the other side of the tape are two copies of a version with slightly simplified features, suitable to be used with either the 48K or the 16K Spectrum.

Except where otherwise stated, the instructions in this manual apply to both versions.

2. Loading the Program

Insert the cassette into the tape recorder, then type:

LOAD'''

Now start the tape ('PLAY'), and press the ENTER key. The process of loading will take approximately 1½ minutes for the 16K version, or 2 minutes for the 48K version. During this time, flashing horizontal lines will be seen at the edges of the screen, while in the centre the following message will be displayed:

CYRUS

1981 European Champion

(c) 1983 Intelligent Software Ltd.

IS – CHESS

If the program fails to load, the volume and/or tone control on the tape recorder may need readjusting.

3. Starting a game

Once the program is loaded, a chessboard appears on the screen, with the pieces in their starting positions.

On the chessboard you will see one square rapidly flashing—alternating between two colours. This flashing square is the *cursor* which you use for telling the computer what moves you are making.

By using the 'direction' keys (←, ↓, ↑, →) you can move the cursor up or down or to the right or left, so as to position it wherever you want it. A momentary key-press moves the cursor one square in the appropriate direction; to move it several squares at once, you may hold the key down. (Notice that when the cursor reaches the end of a row of 8 squares, another press of the same direction key makes it jump to the opposite end.)

If you want to play White, you are now ready to make your first move. But before starting, you may adjust the program's level of playing strength if you wish. See Section 10.

Make your move like this:

- (a) Bring the cursor onto the square occupied by the piece you want to move.
- (b) Press the ENTER key.
- (c) Transfer the cursor to the square where you want the piece to go.
- (d) Press ENTER again. Your move is made for you on the board, and Cyrus starts computing its reply.

When the computer has finished thinking, it announces its move with a characteristic sound signal and plays it on the chessboard. Make your next move in the same way as before.

If you want to play Black, you should press the M key to make Cyrus move first. Before doing this, however, you may wish to press O, so that Black will be playing 'up the board'.

4. The message area

In the space on the left of the chessboard, the computer records the last move made, as well as certain other items of information.

When Cyrus is waiting for you to make a move, it displays: YOUR MOVE? While computing a move of its own, it displays: LET ME THINK... . If you are playing White against the computer, the wording HUMAN v CYRUS is shown at the top of the screen. CYRUS v HUMAN means that you are playing Black.

Moves are recorded by *algebraic notation*. The eight files (or vertical columns of squares) are designated by the letters a-h (looking at the board from White's end, and reading from left to right). The eight ranks (or horizontal rows) are denoted by the numbers 1-8 (starting from the White end). Each square of the chessboard is designated by the letter of its file and the number of its rank. Two examples should make the system clear:

2 D2 – D4

On his second move, White has advanced the pawn in front of his queen. The pawn has gone two squares forward, from d2 to d4. Only one move is displayed on the screen, so it is Black's turn to move next.

13 C3 × E5

... E7 – H4 +

On move thirteen, a white piece moving from c3 has captured a piece on e5 (a capture is denoted by the symbol ' × '). Black has replied by moving a piece from e7 to h4. The ' + ' sign shows that this move gives check. Whenever a pair of moves are displayed together, it is White's turn to move next.

Note: If you are using the 48K version of the program, the blue area below the chessboard contains a list of the commands which are currently available to you. For example, when the wording 'take-Back' or 'Level' is displayed, this reminds you that you may

press B or L (i.e. the key corresponding to the letter capitalized) in order to take back a move (as in Section 12 below) or change the program's level of skill (see Section 10). Once you have read through this manual, the list of commands should be clear to you.

5. Correcting moves

When you press ENTER in the process of making a move, the square where the cursor is placed is recorded in the message area, e.g.

YOUR MOVE? E2

Should you now transfer the cursor to a square which your piece on e2 cannot legally move to, and then re-press ENTER, the message ILLEGAL appears, accompanied by a distinctive buzz. Start again to enter a legal move.

Perhaps, after pressing ENTER the first time, you change your mind about which piece to move. (Or perhaps you pressed the key by accident.) In that case, complete an illegal move (you can do so by re-pressing ENTER before moving the cursor). The letter and number following YOUR MOVE? are erased—you are then free to start entering another move.

6. Special moves

When making a *capture*, move your own piece in the usual way, and the captured piece is automatically removed from the board. A pawn capture *en passant* is no exception.

To *castle*, simply enter the king's move; the rook's move is then made for you automatically.

If you advance a pawn to the eighth rank, the computer asks: PROMOTE TO? Press the key corresponding to the piece you want — Q, R, B or N. (Other keys have the same effect as Q. When Cyrus promotes one of its own pawns, it always chooses a queen.)

7. Result of the game

The computer will display CHECKMATE or STALEMATE in the message area if such a situation has come about.

If both sides move the same pieces backwards and forwards over the same squares three times running, the computer announces: DRAWN.

DRAWN is likewise displayed if no pawn is moved and no piece captured during a sequence of 50 moves by both players.

8. Interrupting the computer

If you press any key while the display shows LET ME THINK... , Cyrus will stop computing and play the move which is best according to its analysis so far.

Notice that if you want to make use of any of the special features described below (if you want to conduct a replay, for instance, or alter the colour scheme), Cyrus will not accept the instructions while it is computing. So if necessary you should first prompt the computer to move, in the way just described.

9. New game

At any time, you can break off the game you're playing, and start a new one—you needn't wait until the result is announced as in Section 7.

Press G when Cyrus is not computing. (If necessary, first press a key to make Cyrus move.) The program asks NEW GAME? and you answer 'yes' by pressing Y. The screen will then show the starting position again. Note that if you ever press the G key by accident you don't automatically erase the current game. In this case you can reply to NEW GAME? with 'no' (by pressing N).

10. Levels of playing strength

The Cyrus program can be set to play on any of eight different levels of skill. The following table shows the approximate average time it takes for a move on each level:

<i>Level</i>	<i>Time</i>
1	2 seconds
2	5 seconds
3	10 seconds
4	20 seconds
5	30 seconds
6	1 minute 15 seconds
7	3 minutes
8	5 – 12 minutes

Note: (a) The program's thinking time can vary considerably with the complexity of the position; in some cases it may take much longer than the average indicated for the level.

(b) The 48K version is equipped with 'book knowledge' of many standard opening variations; so its first few moves are likely to be made quickly irrespective of the level.

In addition to the 'playing' levels listed above, Cyrus has three 'problem' levels. When set for Level P1, it will look for a mate in one move; on Level P2 (or P3), it will try to find a way of forcing

mate in two (or three) moves. On the 'problem' levels the computer keeps on thinking until it either finds a mate or else discovers, by exhaustive analysis, that this is impossible. (For more about problem solving, see Section 15.)

The level on which the program is currently playing is always shown in the message area. When you first load the program, it is set for Level 2.

You can change the level any time when it is your turn to move. To switch to the next level higher, press L. If you press the key repeatedly or keep it held down, the level will keep changing — up to Level 8, then to Levels P1, P2 and P3, then back to Level 1, Level 2 ... and so on. When the level that you want is shown on the screen, release the key and resume play. In the course of a game you may change the level as often as you like.

11. Changing sides — playing both sides — demonstration

If you press M instead of making your move, Cyrus will compute a move for the side you have been playing, and will expect you to take over the other side.

No doubt you will want the colour that you have taken over to be playing 'up the board'. To change the orientation of the board (to turn it through 180 degrees), press O.

If you wish, you may make a sequence of moves for both sides. (You will do this if, for example, you want a game to begin with a particular opening variation.) Press E (message: HUMAN v HUMAN), then enter successive moves for White and Black in the usual manner. When you reach the position from which you want Cyrus to play against you, press M.

If you press D (message: CYRUS v CYRUS), both sides will be played by the computer — as a demonstration game. When the game is over, the computer will pause for about 20 seconds and then automatically start a new one. To halt the demonstration, press any key; after making the next move, Cyrus will then expect you to take over the opposing side.

12. Taking back moves

If you want to take back your last move, Cyrus, unlike most human opponents, will have no objection. Wait for the computer's reply (or induce it with a key-press), then press B. The computer's move is then taken back. Press B again, and your own last move is retracted, enabling you to make another one in place of it.

If you are using the 48K program, your opponent too can be instructed to play a different move in place of the last one. Press N (for the 'next best' move). Cyrus will then retract the last move played, and, after re-computing, will make the move which it considers the best apart from the one just retracted. If you then press N again, Cyrus will play the third best move — you can go on like this until all the legal moves in the position have been exhausted. (The computer then momentarily displays NO MORE MOVES, and once again plays the move it considers strongest.)

By repeated pressing of the B key (or by keeping it held down), you can take back a whole series of moves made by yourself and the computer. The 48K version enables you to retract as many moves as you like (you can go right back to the start of the game); with the 16K version, you may retract a sequence of up to 80 moves (approximately) by both players.

You may take back moves even when one side has been checkmated!

The F key ('forward') has the opposite effect to the B key; it causes a move or moves which you have just taken back to be replayed.

The warning in the Note to Section 13 ('Replay') also applies when you are using the B and F keys.

13. Replay

It's possible to have all the moves of a game replayed for you automatically; this can be done when the game is over, or even while it is still in progress. Give the R key a short, light press (message: REPLAYING). The starting position reappears, after which the moves are replayed at intervals of about $2\frac{1}{2}$ seconds.

If you want to examine any position that arose during the game, you can halt the replay by pressing any key. After that, you have the following options:

- (a) With the F key, you can step forward as far as the last position reached in the game.
- (b) Re-pressing R starts the replay all over again.
- (c) You may continue play from the position arrived at in the replay; enter a move in the usual manner, or press M (or E, or D).

Note: If you want the replay to be finished, you cannot make use of option (c)—since this erases the computer's memory of the moves between the position arrived at in the replay and the last position you had reached before the replay was started.

Also note that in the case of a long game played with the 16K version, only about the last 80 moves can be replayed.

14. Setting up a position

You will need to set up a special position on the board whenever (for example) you want the computer to solve a chess problem. For this purpose you may modify a position arrived at during play, by adding or removing pieces; or you may clear the chessboard and construct the entire position anew. In either case, begin by pressing C. The message CHANGE POSITION appears. As long as this message is displayed, you may do any of the following things:

- (a) To clear the chessboard, press A ('all clear').
- (b) To enter a piece on a square, position the cursor on that square and press the appropriate 'piece' key — K, Q, R, B, N or P. The new piece replaces any other piece that may have been occupying the square.
- (c) To clear an individual square, bring the cursor onto the square and press U ('unoccupied').

Beneath the CHANGE POSITION message, you will see the word WHITE or BLACK. As long as WHITE is displayed, all pieces entered on the board will be white ones. To change over ('toggle') from White to Black or vice versa, press T.

When the position is ready, make sure that the computer knows which side is to move next. As long as WHITE is displayed, Cyrus expects White to make the next move. Press T if necessary.

Then press E (to *exit* from 'change position' mode). The screen shows: YOUR MOVE? You may now resume play against Cyrus (enter a move or press M), start a 'demonstration' (press D), or make moves for both sides (press E again).

Note: (a) *Castling and en passant*. If a king or rook has been entered on the board in the manner described above, there can be no castling with that piece. To construct a position where castling is possible, you can start from the 'new game' position (press G and Y first, then C); the king(s) and rook(s) can then be left alone while other pieces are removed individually with the U key.

When you resume play after setting up or changing a position, the next move cannot be a capture *en passant*. To construct a position where such a capture is possible, set up the immediately preceding position, then play the move which permits the capture.

(b) *'Take back' and 'Replay'*. If you have made use of the 'change position' function, you will afterwards, of course, be able to take back moves only as far as the position you have set up or

modified. Also, any subsequent replay will begin from that position.

However, if during a game you press C by mistake, you don't automatically erase the computer's memory of the preceding moves. Provided you now press E without having made any alterations to the position, play can continue as before, and the preceding moves may be taken back or replayed in the normal manner.

(c) *Illegal positions.* Suppose you've set up a position in which a player has (e.g.) no king, or a pawn on the back rank, or eight pawns in addition to two queens; or the opponent of the player whose move it is has his king in check. Cyrus recognizes such a position as illegal (it couldn't have been reached by any legal sequence of moves from the starting position), and will not allow play to continue from it. When you press E, the message ILLEGAL will appear. Modify the position again to make it legal.

(d) *Numbering of moves.* When you have used the 'change position' function, the numbering of subsequent moves begins from 10.

15. Chess problems

The chess problems that appear in magazines and newspapers usually carry some such wording as 'White to play and mate in three moves'. This means that you have to find a move for White which will enable him to give checkmate on his third move at the latest, no matter what Black plays in the meantime.

Cyrus can solve problems for mate in 1, 2 or 3 moves. Set up the position as described in Section 14. Select Level P1, P2 or P3 as appropriate. Press M.

When the computer makes its move, you may re-set the level (from P3 to P2, or P2 to P1), then play a move for the defending side. After re-computing, Cyrus will make the next move of the solution. After that, you can, if you like, press B and enter a different defensive move, to see how Cyrus counters it.

Note: (a) If the computer discovers that it is not possible to force mate within the stipulated number of moves, it emits a sound signal and displays CHANGE POSITION (giving you the possibilities described in Section 14). In addition, the 48K version momentarily announces NO MATE FOUND.

(b) One of the 'rules' of problem composition is that a chess problem must have only one solution. The 48K version of the Cyrus program is able to check whether alternative solutions to a problem are possible. After a move of the solution has been played by the computer, you may press N. Then, after re-computing, Cyrus will make an alternative move if it finds a suitable one; if not, it will display NO MATE FOUND.

(c) Cyrus cannot solve any problem that requires an 'under-promotion' (promotion of pawn to rook, bishop or knight).

16. Colour scheme

The 48K version of the program allows you a wide choice of colour schemes for the chessboard display.

To alter the colours, press A. The program then asks: COLOUR FOR BLACK PIECE? Choose which colour you want the 'black' pieces to be, and press the corresponding key:

- 1 — BLUE
- 2 — RED
- 3 — MAGENTA
- 4 — GREEN
- 5 — CYAN (pale blue)
- 6 — YELLOW
- 7 — WHITE
- Ø — BLACK

You then have the option of pressing three more 'colour' keys, to determine the colour of the 'white' pieces, the 'black' squares and the 'white' squares.

When the screen is displaying (e.g.) COLOUR FOR WHITE PIECE? you may press 8 if you want the 'white' pieces to remain as they are.

If you press D ('default') after A, the display reverts to the same colour scheme as when the program was first loaded.

If the screen is displaying a question about the colours and you decide not to make any further changes, press any key (other than 8 or the 'colour' or 'shift' keys); you can then carry on with the game.

17. Sounds

Press S if you want the program to operate without its sound signals. To switch the sounds on again, re-press the same key.

18. Printer

The 48K version of the program can be operated in conjunction with the ZX Printer.

If you press P (message: COMMAND?) followed by B, the current position on the chessboard is printed.

To print the record of the moves made so far, press P followed by R. (This can be done in the middle or at the end of a game. The moves are replayed on the screen while the printer records them.) If you have previously used the 'change position' feature (see Section 14), the printer first prints the position that you set up, then the subsequent moves. The printer can be stopped by any key-press.

If you want each move in the game to be printed as soon as it is played, press P followed by T, so that the message LISTING ON appears. This 'listing' function can be switched off ('toggled off') by re-pressing P and T.

If you press P by mistake, you should reply to COMMAND? by pressing any key other than B, R, T or a 'shift' key; play may then continue as before.

19. Tape

If you are using the 48K program, the game may be recorded on tape, then at a later date re-loaded into the computer's memory.

Connect the computer to the tape recorder, then press T (message: COMMAND?). To enter the game record onto the tape, press S ('save') and start the tape recorder; then press any of the computer's keys. Flashing horizontal lines at the edge of the screen show that the game is being recorded (the process may be halted by pressing BREAK). Afterwards, the display shows YOUR MOVE? and you may continue using the program as before.

To load a game record from the tape into the computer's memory, press T followed by L, then start the tape recorder. (The process of loading is indicated, again, by flashing lines on the border; it may be halted with the BREAK key.) When loading is complete, the screen shows the final position of the game record. You may now enter a move (if appropriate), or conduct a 'replay', or make use of any other functions of the program.

If the tape contains unsuitable data, the computer displays TAPE ERROR and returns to the same position as before the tape was started.

If you press T but then decide not to use the tape recorder after all, any key-press (apart from S, L or a 'shift' key) enables you to resume play.

20. Summary of features

Feature	48K Version	16K Version (asterisk indicates same feature as 48K version)
SPECIAL MOVES	Castling, <i>en passant</i> , pawn promotion (user may 'under-promote'; program always promotes to queen)	*
RESULT OF GAME	Program recognizes checkmate, stalemate, draw by 50-move rule, draw by repetition of <i>consecutive</i> moves	*
LEVEL	8 levels of playing strength	*
CHANGING SIDES	User may change sides with computer at any time; White or Black may play 'up'	*
DEMONSTRATION	Both sides played by computer	*
ENTERING CONSECUTIVE MOVES	User may make a sequence of moves for both White and Black	*
TAKE BACK	Any number of moves may be taken back (and reinstated)	Up to c.160 ply may be taken back (and reinstated)
REPLAY	Entire game may be replayed	Last c.160 ply may be replayed
NEXT BEST	Program retracts last move and plays what it considers best apart from the move or moves just retracted	

CHANGE POSITION	Board may be cleared, pieces may be added or removed; White or Black may play next	*
CHESS PROBLEMS	Program solves mate in 1, 2 or 3 moves (excluding 'under-promotions')	*
COLOUR SCHEME	Wide range of colour schemes may be chosen for chessboard display	
LIST OF COMMANDS	Screen displays commands currently available	
SOUNDS	May be switched on or off	*
PRINTER	Prints current board position, complete game record, or each move as played	
TAPE	Game record may be saved on tape and re-entered into computer's memory	

21. Summary of commands

1. For 16K and 48K Versions

←
→
↑
↓

} Move cursor

B TAKE BACK MOVE(S)/Promote pawn to BISHOP

C CHANGE POSITION.....

A	ALL CLEAR
B	BISHOP
E	EXIT (resume play)
K	KING
N	KNIGHT
P	PAWN
Q	QUEEN
R	ROOK
T	TOGGLE (White/Black)
U	UNOCCUPIED (clear square)

D DEMONSTRATION

E ENTER (user plays both sides)

F FORWARD, i.e. replay move(s) taken back

G NEW GAME.....

Y	YES
(other keys)	NO

L SET LEVEL

M MOVE (change sides)

N Promote pawn to KNIGHT

O ORIENTATION (turn board round)

Q Promote pawn to QUEEN

R REPLAY/Promote pawn to ROOK

S SOUND (off/on)

ENTER Enter move

2. For 48K Version only

A ALTER COLOURS.....

Ø	BLACK
1	BLUE
2	RED
3	MAGENTA
4	GREEN
5	CYAN
6	YELLOW
7	WHITE
8	Colour unchanged
D	Default colour scheme

(other keys: Resume play)

N NEXT BEST MOVE

P PRINTER.....

B	Print BOARD
R	Print MOVE RECORD
T	TOGGLE (listing on/listing off)

(other keys: Resume play)

T TAPE.....

L	LOAD game record
S	(followed by any key:) SAVE game record
BREAK	Abort (Stop loading or saving)

(other keys: Resume play)

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