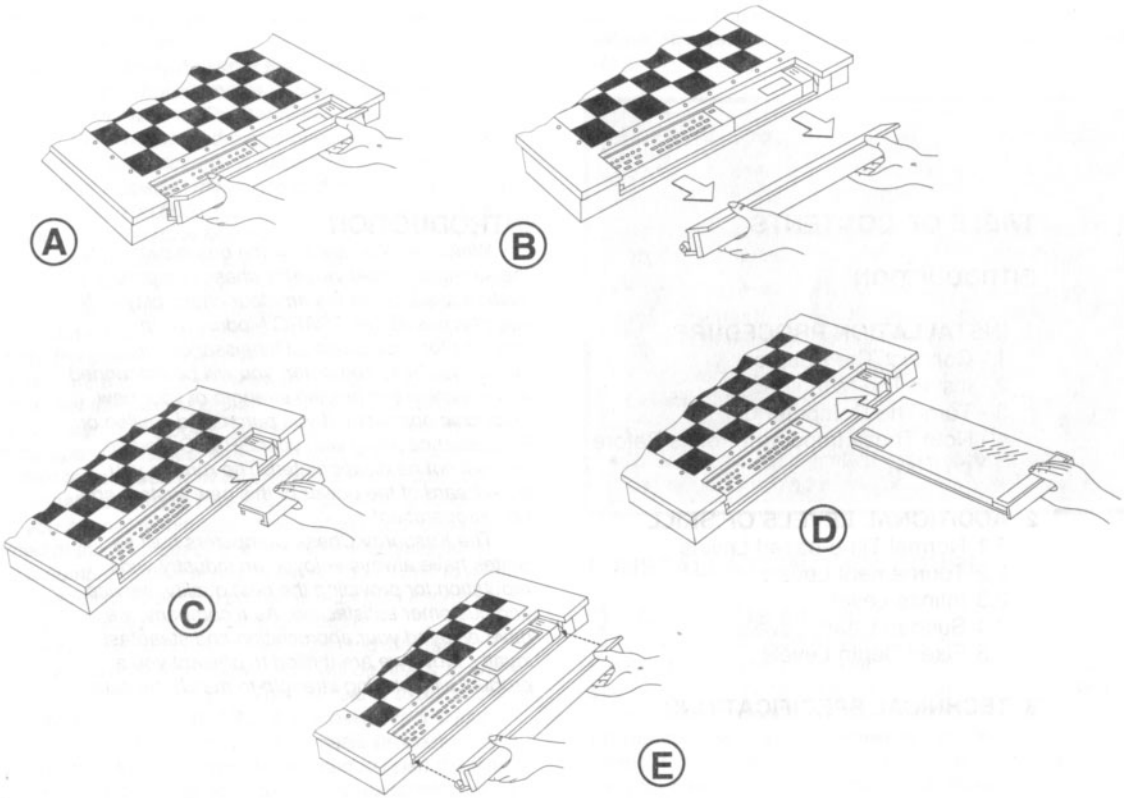
KASPAROV

SPARC MODULE

Saitek®™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INTRODUCTION

Welcome! You are now the proud owner of the strongest, most versatile chess computer system available to the amateur chess player. If you purchased this SPARC Module as an upgrade for your Galileo, Renaissance, or Leonardo chess computer, you will be astounded at the increase in playing strength of your new electronic opponent. If you purchased Galileo or Renaissance along with your SPARC Module, you will not be disappointed. The rumors you have heard of the power of this new system are no exaggeration!

The Kasparov Chess Computers built by Saitek have always enjoyed an industry-wide reputation for providing the best quality, service, and customer satisfaction. As a company, we have enjoyed your appreciation and steadfast loyalty. Now, we are thrilled to present you a product with playing strength to match the care

which we have always put into our systems. The wait is over. The power is here!

The revolutionary power of the new SPARC Module comes from vast improvements in both the hardware and software of this module. The hardware power comes from a SPARC RISC processor, the chip of choice for the world's most powerful workstations. A full megabyte of memory is at the service of a quarter megabyte of program and opening book, with over 100,000 unique chess positions. With our Automatic Transposition Manager (ATM), the effective number of chess positions is many times larger, approaching 300,000, since our transposition system means that no position need ever be repeated. The software power comes from a totally new chess program written especially to utilize the power of the SPARC processor.

If you are a computer chess aficionado, you may want to know that this new algorithm combines a full-width and selective search; the power of the null-move algorithm; and vast transposition tables, which are user expandable. The algorithm tests to see how much memory is available and automatically adjusts to take advantage of the added space.

If you are not a computer chess aficionado, don't be alarmed at the strength of this machine. We have put in place a number of new levels to tame it down and to allow you to gradually let out the power as your play improves. This is a machine you will not soon outgrow.

When at last you have grown in playing strength to match the power of this module, you will be happy to know that we are growing with you. This module is expandable and upgradeable. The SPARC chip is new. We are just beginning to tap the power of this versatile processor. And, of course, the OSA Link can still be used to open the way to personal computers and opportunities for expansion using disk storage. You can even access Chess Base using your Galileo, Renaissance, or Leonardo and the OSA link. Look into it!

All Those Special Features, and Even More!

- *So easy to operate — the host computer detects the module's presence automatically*
- *Adds 32 new and different levels of play to choose from, without sacrificing the original 32 playing levels*
- *State-of-the-art hash table technology speeds up searches more than 200% in the middlegame, and more than 600% in the endgame*
- *Program can be expanded up to one megabyte, and DRAM for the hash tables can be upgraded to four megabytes*
- *Balanced search algorithm plays aggressively and sharply, challenging even the best Master players*

1. INSTALLATION PROCEDURE

1 Connect The Adapter

The SPARC Module will not operate on batteries alone — the adapter must always be connected. We also recommend that batteries remain installed in your chess computer, even when using the adapter, since this will prevent the loss of stored games in the event of a power outage. For further instructions on connecting the adapter, see your chess computer's Instruction Manual.

ENGLISH

2 Install The Module

> ***IMPORTANT:*** *Never insert or remove the SPARC Module while your chess computer is turned on! Doing so could severely damage the circuit.*

To install the module, see Figures A through E. Make sure you slide the module into the slots as indicated, and be sure to push the module in firmly, as shown in Figure D.

3 Turn The Computer On

After inserting the module, press **ON** to turn your chess computer on. If the module has been installed correctly, the Module Light will turn on. Wait for 5 seconds or more before you press a key.

4 Note These Important Points Before You Play!

Please note the following points, regarding the use of your chess computer with the SPARC Module:

a. The Module can only be used with the chess computer's adapter, since it draws power from the adapter. If you use the computer with batteries only and the module inserted, the computer will operate without recognizing the presence of the module. This is not recommended, however, since it shortens battery life by about 50%.
b. Once **STOP** is pressed (with the module in), wait for at least 10 seconds before pressing **GO**.
c. Make sure to turn your chess computer off (by pressing **STOP)** before plugging in or removing the adapter.
d. If the adapter is accidentally disconnected while you are playing on one of the module's levels, the Module Light will turn off and your chess computer will change to the preprogrammed level of the host computer on its next move. To rectify this problem, first press **STOP** to turn the computer off. Then plug the adapter back in, turn the computer on again, and the game will revert to the module's previously selected playing level.

2. ADDITIONAL LEVELS OF SKILL

Installation of the SPARC Module adds 32 more playing levels to your computer's original 32 levels.

2.1 Normal Time-based Levels

LEVEL	*AVERAGE RESPONSE TIME*
e1	5 seconds per move
e2	10 seconds per move
e3	15 seconds per move
e4	30 seconds per move
e5	1 minute per move
e6	2 minutes per move
e7	3 minutes per move
e8	3 min. 45 sec. per move

The first eight levels are the normal playing levels, getting progressively stronger from e1 to e8. If you have trouble beating the module even on Level e1, you may want to start with the Fixed Depth Levels (see Section 2.5).

2.2 Tournament Levels

TOURNAMENT LEVEL	*DESCRIPTION*	*TIME CONTROL*
f1	Club tournament	30 moves in 30 min., then 30 moves per 30 min.
f2	European Club tournament	35 moves in 90 min., rest of the moves in 15 min.
f3	International tournament standard	40 moves in 2 hrs., then 20 moves per hr.

f4	Slow tournament	45 moves in 2 hrs., then 23 moves per hr.
f5	U.S. Open tournament	50 moves in 2.5 hrs., then 20 moves per hr.
f6	Fast tournament	60 moves in 1 hr., then 30 moves in 30 min.
f7	Grand Master tournament	40 moves in 2.5 hrs., then 16 moves in 1 hr.

Levels f1 to f7 are for tournament only. In these levels the computer will play a certain number of moves in a given amount of time, attempting to meet the so-called "time controls" at certain points in the game. This is exactly what happens in human tournaments. At the time control the arbiter checks to see whether both players have completed the required number of moves. If one of them hasn't, he loses the game.

2.3 Infinite Level

f8	Correspondence chess and analysis	Computer only makes a move when interrupted (pressing **PLAY**)

Level f8 is the Infinite Level, where the computer thinks indefinitely, until you interrupt it by pressing **PLAY**. You can use this level to have the module analyze complicated positions for hours or even days!

The computer announces a move if it finds a forced mate or has searched all possible moves up to its search capacity limit, or if it plays a move from the book.

2.4 Sudden Death Levels

LEVEL	*TIME CONTROL*
g1	5 minutes per game
g2	10 minutes per game
g3	15 minutes per game
g4	20 minutes per game
g5	30 minutes per game
g6	1 hour per game
g7	2 hours per game
g8	3 hours per game

On Levels g1 through g8, the players are required to make all the moves in the game in a certain amount of time, regardless of the number of moves made. If one side runs out of time without checkmating his opponent, that side loses the game. The game may be terminated if it is a technical draw or if both players agree to a draw.

2.5 Fixed Depth Levels

LEVEL	*SEARCH DEPTH*
h1	1 ply search
h2	2 ply search
h3	3 ply search
h4	4 ply search
h5	5 ply search
h6	6 ply search
h7	7 ply search
h8	8 ply search

On the Fixed Depth Levels, the module's search depth is limited to the number of moves corresponding to the currently set level. For example, on Level h6, the module searches to a depth of 6 ply (or 6 half-moves).

The Fixed Depth Levels can be valuable for both chess aficionados and intermediate players. For those of you who are not able to beat the module even at 5 seconds per move (Level e1), setting the module to a fixed depth search is the ideal way to better your chances of beating the computer. Start with Level h1, and as your chess skills improve,

gradually increase the playing strength by skipping to the next level! Chess experts will also find that the Fixed Depth Levels can provide them with an ideal way to study the program's performance.

3. TECHNICAL SPECIFICATIONS

Processor Speed:	20MHz
Program Memory:	256Kb ROM
RAM Memory:	1Mb RAM
Power Consumption:	18W max
Power Requirement:	1.5A typical at 10V
Dimensions:	379 x 140 x 22mm

To obtain repairs, please return the product to:

Saitek Ltd.
12 F, Chung Nam Centre,
414 Kwun Tong Road,
Kwun Tong,
Hong Kong.

Saitek reserves the right to make technical changes without notice in the interest of progress

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