The 24th ACM International Computer Chess Championship
Cape May, New Jersey
June 25-27, 1994
A Special Event at the Symposium on Parallel Algorithms and Architectures

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.....1988 Orlando: DEEP THOUGHT.........1989 Reno: HITECH and DEEP THOUGHT (Tied for 1st Place)
1993 Indianapolis: Socrates II
Welcome 94

Ten programs are gathered here to determine a winner of this longest-running computer chess championship. This is the twenty-fourth such event, with the first dating back to New York City in 1970. Half of the participants estimate the strength of their program exceeds a rating of 2400. No program is entered with an estimated rating below 2100. With the ability to reliably test programs, the estimated rating are quite accurate, differing by probably less than 50-100 points from what their performance here will show. Thus, we should be in for three days of outstanding chess. And while DEEP THOUGHT II is the pre-tournament favorite, it can expect to receive strong challenges from a number of competitors. CRAY BLITZ will be better than ever, as will be M-CHESS PRO, STAR-SOCRATES, WCHESS, and ZARKOV.

Three programs, DEEP THOUGHT II, CRAY BLITZ and STAR-SOCRATES will run on superfast multiprocessors and examine as many as 100,000,000 chess positions on each move. The three are aiming at obtaining significant speedups over single processor versions of their programs. Their goal of obtaining a linear speedup, however, is extremely difficult to achieve. A special trophy will be given to the best multiprocessing system.

Six of the ten participants will used PC, PC compatibles, or Macintoshes that all run at speeds in excess of 50MHz. The Pentium is appearing at its first ACM tournament. The raw computing power at this event clearly exceeds that of any of its predecessors.

While the trend towards larger and larger opening books continues, there is a new trend: the programs are coming with endgames databases. DEEP THOUGHT II currently is leading the way in this regard, incorporating Ken Thompson's five-piece endgame database.

On Sunday, from 4:00PM-5:00PM a panel discussion chaired by Tony Marsland will examine recent advances in computer chess. Events of the last year will be discussed including the recent remarkable success of Fritz in a GM speedchess tournament in Germany. [See game below!!].

Mike Valvo, one of the top blindfold chess players in the United States will serve as TD. Mike has served in this capacity for over a decade and has always done an outstanding job. Tony Marsland and myself will serve as Tournament Officials.

In closing, I would like to extend a special thanks to IBM for their support of this event. In addition, I would like to thank the organizers of the 6th Symposium on Parallel Algorithms and Architectures for having us as part of their program. Of course, the success of this event rests in the hands of the participants and I want to extend them many thanks for their efforts here. I wish them all success.

Monty Newborn
Chairman, ACM Computer Chess Committee

Other Committee Members
Hans Berliner
Tony Marsland
Kathy Spracklen
Ken Thompson

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Kasparov - FRITZ
1 e4 c5 2 c4 dxc 3 Bxc4 e5 4 d4 exd 5 exd Bb4+ 6 Nc3 Nf6 7 Nf3 O-O 8 O-O Bg4 9 h3 Bh5 10 g4 Bg6 11 Ne5 Nc6
12 Be3 Nxe4 13 Pxo Nxd 14 f4 Nb6 15 Bb3 Bb3 16 Qf3 BxR 17 RxB c6 18 Qf2 Qe7 19 QxP e5 20 fxe g KxP
21 Ne4 Nxd 22 Bxb Pxb 23 Ng3 Kg8 24 Nf5 Rac8 25 Qf2 Rc4 26 Nh6+ Kh8 27 BxP f6 28 Rd5 Re8 29 a3 Be1
30 Qg2 Re4 31 Ne6 Rd7 32 Rf5 Re2 33 Rf2 RxQ 34 KxP PxB 35 Bb8 e4 36 Be5+ RxP 37 Nf7+ Kg7 38 NxB Bd2
39 Kf1 Bc1 40 b3 BxP 41 g5 d4 42 e2 d3+ 43 Kd2 Bd6 44 Nc4 Bf4+ 45 Ke3 b5 1-0
Important Times and Places

1. **Schedule of Rounds**

   Round 1:  11:00 AM  
   Round 2:  7:00 PM  
   Round 3:  9:00 AM  
   Round 4:  7:00 PM  
   Round 5:  7:00 PM  

   Saturday  June 25  
   Saturday  June 25  
   Sunday    June 26  
   Sunday    June 26  
   Monday    June 27  

   Note: All participants must attend a meeting at 10:00AM on the 25th at which time the rules will be finalized.

2. **Technical Session**: Sunday June 26, Recent Developments in Computer Chess 4:00 PM - 5:00 PM. Chair: Tony Marsland.

3. **ICCA Meeting**: Monday June 27, 4:00 PM - 5:00 PM.

4. **ACM Computer Chess Committee Meeting**: Monday June 27, 12:00 PM - 1:00 PM.

5. **Awards Ceremony**: The following awards will be presented at the Awards Ceremony on Tuesday June 28th at lunch.

   Awards:  
   First Place.......................... Trophy  
   Second Place.......................... Trophy  
   Third Place........................... Trophy  
   Best Multiprocessing System ........ Trophy

**Tournament Director**: Mike Valvo.

**Tournament Officials**: Monty Newborn and Tony Marsland.
Information on Participants

CRAY BLITZ
Robert Hyatt, Harry Nelson, Albert Gower, c/o RH, Department of Computer and Information Science, Campbell Hall, University of Alabama at Birmingham, Birmingham, AL, 35294.

DEEP THOUGHT II
Feng-Hsiung Hsu, Murray Campbell and Joe Hoane, c/o FH, IBM T. J. Watson Research Center, P. O. Box 704, Yorktown Heights, NY 10598.

EVALUATOR
Bill MacLaughlin, 318 Codman Hill Road E1, Boxboro, MA 01719.

INNOVATION II
Jeff Mallett, 8112 Sherrills Ford Road, Sherrills Ford, NC 28673.

M-CHESS PRO
Marty Hirsch, PO Box 9388, San Rafael, CA, 94912.

NOW
Mark Lefler, 223 Arbor Lane, Bryans Road, MD 20616.

SPECTOR
Steven J. Edwards, P. O. Box 215, Chelmsford, MA 01824.

STAR-SOCRATES
Don Dailey and Larry Kaufman, c/o Julio Kaplan, 2550 9th Street, #204, Berkeley, CA 94710; Robert D. Blumofe, Eric A. Brewer, Michael Halbher, Christopher J. Joerg, Bradley C. Kuszmaul, Charles E. Leiserson, and Yuli Zhou, c/o BK, 8 Florence Road, Waltham, MA 02154.

WCHESS
David Kittinger, James Parker, c/o DK, IHP Inc., 5965 Arbon Ave., Mobile, AL 36608.

ZARKOV
## Computing System Information

<table>
<thead>
<tr>
<th>Program/Author(s)</th>
<th>Computing system, language, etc. (* indicates at site)</th>
<th>Nodes/sec</th>
<th>Rating Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRAY BLITZ</td>
<td>Fortran + Cray assembly + C, An 8-proc. Cray YMP (4000 mips) or a 16 proc. C90 (1300 mips) 150K for executable code + space for hash tables. Uses dynamic tree splitting, a variation of PVS, which minimizes idle time and sync wait times by using a sort divide and conquer algorithm. Book: 300K+; Cray Research Center, Minneapolis, MN.</td>
<td>750k</td>
<td>2400+</td>
</tr>
<tr>
<td>DEEP THOUGHT II</td>
<td>C + microassembly, IBM RS/6000 S80, Memory space: 100 mb.; 100 mips Runs on 12-16 processors. Endgame DB from Thompson’s CD ROMs, Hawthorne, NY.</td>
<td>4000k</td>
<td>2550</td>
</tr>
<tr>
<td>EVALUATOR</td>
<td>C, IBM PC 486 DX4 100Mhz, 8mb 131k for executable code; Book: 15000 positions*</td>
<td>6k</td>
<td>2200+</td>
</tr>
<tr>
<td>M-CHESS PRO</td>
<td>C + Intel assembler, Intel Pentium 60Mhz 11mb 200kb for executable code; Book: 300000 moves*</td>
<td>9k</td>
<td>2400</td>
</tr>
<tr>
<td>NOW</td>
<td>PASCAL, IBM PC Clone, 50 mhz 80486, Book: 6000 positions Some endgame-perfect knowledge used (Beal’s KPK)*</td>
<td>8k</td>
<td>2300</td>
</tr>
<tr>
<td>SPECTOR</td>
<td>C, Sparky (Home-designed based on an Intel 66Mhz 486DX2 with 256kb level two cache. 11 mips, Executable code: 200mb 500kb for data, Book: 6000 positions (being built automatically from 60000 games over past century)*</td>
<td>3k</td>
<td>2100</td>
</tr>
<tr>
<td>STAR-SOCRATES</td>
<td>C, Connection Machine CM-5, 512 processors, 16 gb Uses a parallel search algorithm called Jamboree search, a natural parallelization of Pearl’s Scout search. Book: 13000 positions; KPK EG DB National Center for Supercomputing Applications. Urbana-Champaign, IL.</td>
<td>1000k</td>
<td>2400+</td>
</tr>
<tr>
<td>WCHESS</td>
<td>C (Watcom), 90 Mhz Pentium system, 16 mb 200kb for executable code; Book: 105000 moves.*</td>
<td>50k</td>
<td>2500+</td>
</tr>
<tr>
<td>ZARKOV</td>
<td>C, HP735, 87 mips, Executable code 200kb, Book: 15k positions; KPK EG DB. HP, Fort Collins, CO.</td>
<td>15k</td>
<td>2400+</td>
</tr>
</tbody>
</table>
The 24th ACM International Computer Chess Championship
Score Table

<table>
<thead>
<tr>
<th>Team</th>
<th>Rounds</th>
<th>Total Points</th>
<th>Final Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CRAY BLITZ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. DEEP THOUGHT II</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. EVALUATOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. INNOVATION II</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. M CHESS PRO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. NOW</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. SPECTOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. STAR-SOCRATES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. WCHESS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. ZARKOV</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Code: ![Diagram](image)  
Number of points  
Number and color of opponent
24th ACM International Computer Chess Championship
Tournament Rules

1. Each entry is a computing system and one or more human operators. A listing of all chess-related programs running on the system must be available on demand to the TD. Each entry requires at least one full-time operator.

2. Participants are required to attend an organizational meeting at 10:00AM on June 25 for the purpose of officially registering for the tournament. Rules will be finalized at that meeting.

3. The tournament is played Swiss style. Rounds 1 and 2 begin June 25 at 11:00AM and 7:00PM respectively, rounds 3 and 4 begin June 26 at 9:00AM and 7:00PM respectively, and round 5 begins June 27 at 7:00PM.

4. Trophies and prizes will be awarded to the first three finishers. The order of finish will be determined by the total number of points earned. If two or more teams have an equal number of points, they will be considered as tied. A trophy will be awarded to the "Best Multiprocessing System."

5. Unless otherwise specified, rules of play are identical to those of "human" tournament play. If a point is in question, the TD has the right to make the final decision.

6. Games are played at a rate of 40 moves/player in the first two hours and 20 moves/player per hour thereafter.

7. The TD has the right to adjudicate a game after six hours of total clock time. The adjudication will be made on the premise that perfect chess will be played by both sides from the final position. Every effort will be made by the TD to avoid adjudication.

8. An operator may ask the TD to stop clocks at most twice during a game because of technical problems. The operator can ask the TD for permission to restart the program. When restarting after a failure of any kind, the operator must reset all parameters to their values at the time the game was interrupted. Play must resume after at most a fifteen-minute delay. If an operator using a remote computer can clearly establish that the problems are not in his own computer system but in the communication network, the TD can permit additional time-outs.

9. An operator error made when starting a game or in the middle of a game can be corrected only with the approval of the TD. If an operator enters an incorrect move, the TD must be notified immediately. Both clocks will be stopped. The game must then be backed up to where the error occurred. Clocks will be backed up to their settings when the error occurred using whatever information is available. Both sides may then adjust program parameters with the approval of the TD. The TD may not allow certain parameters to be changed, e.g., the contempt factor.

10. Terminals at the tournament site must communicate directly with remote computers, i.e., there cannot be any human intermediary at the remote location.

11. Each team that uses a terminal must position the terminal in such a way that the opponent has a good view of it. An operator can only (1) type in moves and (2) respond to request from the computer for data. If an operator must type in any other information, it must be approved ahead of time by the TD. (This might happen if there is noise on the communication line and, for example, a CR must be typed to clear the line.) The operator cannot query the system to see if it is alive without permission of the TD.

12. A team must receive the approval of the TD to change from one computing system to another.

13. Each game is played on a chess board and with a clock both provided by the Tournament Committee.

14. At the end of each game, each team is required to turn in a game listing to the TD.
## History of Major Tournaments

### ACM International Computer Chess Championships*

<table>
<thead>
<tr>
<th>Year</th>
<th>City</th>
<th>Winner</th>
<th>Runner-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>New York</td>
<td>CHESS 3.0; Slate, Atkin, Gorlen, CDC 6400</td>
<td>DALY CHESS PROGRAM; Daly, King, Varian 620i</td>
</tr>
<tr>
<td>1971</td>
<td>Chicago</td>
<td>CHESS 3.5; Slate, Atkin, Gorlen, CDC 6400</td>
<td>TECH; Gillogly, PDP 10</td>
</tr>
<tr>
<td>1972</td>
<td>Boston</td>
<td>CHESS 3.6; Slate, Atkin, Gorlen, CDC 6400</td>
<td>OSTRICH; Arnold, Newborn, DG Supernova</td>
</tr>
<tr>
<td>1973</td>
<td>Atlanta</td>
<td>CHESS 4.0; Slate, Atkin, Gorlen, CDC 6400</td>
<td>TECH II; Baisley, PDP 10</td>
</tr>
<tr>
<td>1974</td>
<td>San Diego</td>
<td>RIBBIT; Hansen, Crook, Parry, H’well 6050</td>
<td>CHESS 4.0; Slate, Atkin, CDC 6400</td>
</tr>
<tr>
<td>1975</td>
<td>Minneapolis</td>
<td>CHESS 4.4; Slate, Atkin, CDC Cyber 175</td>
<td>TREEFROG; Hansen, Calnek, Crook, Honeywell 6080</td>
</tr>
<tr>
<td>1976</td>
<td>Houston</td>
<td>CHESS 4.5; Slate, Atkin, CDC Cyber 176</td>
<td>CHAOS; Swartz, Berman, ALEXander Ruben, Toikka, Winograd, Amdahl 470</td>
</tr>
<tr>
<td>1977</td>
<td>Seattle</td>
<td>CHESS 4.6; Slate, Atkin, CDC Cyber 176</td>
<td>DUCHESS; Truscott, Wright, Jensen, IBM 370/168</td>
</tr>
<tr>
<td>1978</td>
<td>Washington</td>
<td>BELLE; Thompson, Condon, PDP 11/70 w/ chess hardware</td>
<td>CHESS 4.7; Slate, Atkin, CDC Cyber 176</td>
</tr>
<tr>
<td>1979</td>
<td>Detroit</td>
<td>CHESS 4.9; Slate, Atkin, CDC Cyber 176</td>
<td>BELLE; Thompson, Condon, PDP 11/70 with chess hardware</td>
</tr>
<tr>
<td>1980</td>
<td>Nashville</td>
<td>BELLE; Thompson, Condon, PDP 11/70 w/ chess hardware</td>
<td>CHAOS; Alexander, O’Keefe, Swartz, Berman, Amdahl 470</td>
</tr>
<tr>
<td>1981</td>
<td>Los Angeles</td>
<td>BELLE; Thompson, Condon, PDP 11/23 w/ chess hardware</td>
<td>NUCHESS; Blanchard, Slate, CDC Cyber 176</td>
</tr>
<tr>
<td>1982</td>
<td>Dallas</td>
<td>BELLE; Thompson, Condon, PDP 11/23 w/ chess hardware</td>
<td>CRAY BLITZ; Hyatt, Gower, Nelson, Cray 1</td>
</tr>
<tr>
<td>1983</td>
<td></td>
<td>Not held as the ACM NACCC that year but as the Fourth World Championship. See World Championships.</td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td>San Francisco</td>
<td>CRAY BLITZ; Hyatt, Gower, Nelson, Cray XMP/4</td>
<td>BEBE; Scherzer, Chess Engine, and FIDELITY EXPERIMENTAL; Sparcklen, Spracklen, Fidelity machine</td>
</tr>
<tr>
<td>1985</td>
<td>Denver</td>
<td>HITECH; Ebeling, Berliner, Goetsch, Paley Campbell, Slomer, SUN w/ chess hardware</td>
<td>BEBE; Scherzer, Chess engine</td>
</tr>
<tr>
<td>1986</td>
<td>Dallas</td>
<td>BELLE; Thompson, Condon, 11/23+c.h.</td>
<td>LACHEX; Wendroff, Cray X-MP</td>
</tr>
</tbody>
</table>

1987 Dallas  
CHIPTEST-M; Anantharaman, Hsu Campbell, SUN 3 with VLSI chess hardware  
CRAY BLITZ; Hyatt, Nelson, Gower  
Cray XMP 4/8

1988 Orlando  
DEEP THOUGHT 0.02; Hsu Anantharaman, Browne, Campbell, Nowatzyk, SUN 3 w/ VLSI circuitry  
CHESS CHALLENGER EXP; Spracklen, Spracklen, Nelson, Fidelity machine with Motorola 68030 microprocessor

1989 Reno  
HITECH*; Ebeling, Berliner, Goetsch, Paley, Campbell, Slomer, SUN w/ chess hardware  
(* denotes 1st-place tie)  
DEEP THOUGHT*; Hsu, Anantharaman, Browne, Campbell, Nowatzyk, 3 SUN 4s w/ VLSI chess hardware

1990 New York  
DEEP THOUGHT/88; Hsu, Anantharaman, Jensen, Campbell, Nowatzyk, SUN 4 with two special VLSI chess circuits  
MEPHISTO; Lang, 68030 microprocessor MEPHISTO machine

1991 Albuquerque  
DEEP THOUGHT II, Hsu, Campbell, RS/6000 550 + 24 chess processors.  
M CHESS; Hirsch, IBM PC Clone/486.

1993 Indianapolis  
Socrates II, Dailey, Kaufmann, IBM PC  
CRAY BLITZ; Hyatt, Gower, Nelson

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**WORLD CHAMPIONS**

<table>
<thead>
<tr>
<th>Year</th>
<th>City</th>
<th>Winner</th>
<th>Runner-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974</td>
<td>Stockholm</td>
<td>KAISSA; Donskoy, Arlazarov, ICL 4/70</td>
<td>CHESS 4.0; Slate, Atkin, CDC 6600</td>
</tr>
<tr>
<td>1977</td>
<td>Toronto</td>
<td>CHESS 4.6; Slate, Atkin, CDC Cyber 176</td>
<td>DUCHESS; Truscott, Wright, Jensen, IBM 370/165</td>
</tr>
<tr>
<td>1980</td>
<td>Linz</td>
<td>BELLE; Thompson, Condon, PDP 11/23 with chess circuitry</td>
<td>CHAOS; Alexander, Swartz, Berman O'Keefe, Amdahl 470/V8</td>
</tr>
<tr>
<td>1983</td>
<td>New York</td>
<td>CRAY BLITZ; Hyatt, Gower, Nelson, Cray XMP/48</td>
<td>BEBE; Scherzer, Chess engine</td>
</tr>
<tr>
<td>1986</td>
<td>Cologne</td>
<td>CRAY BLITZ; Hyatt, Gower, Nelson, Cray XMP</td>
<td>HITECH; Berliner, et al., SUN workstation with chess circuitry</td>
</tr>
<tr>
<td>1989</td>
<td>Edmonton</td>
<td>DEEP THOUGHT; Hsu, Anantharaman Browne, Campbell, Jansen, Nowatzyk, SUN with VLSI chess hardware</td>
<td>BEBE; Scherzer, Chess Engine</td>
</tr>
<tr>
<td>1992</td>
<td>Madrid</td>
<td>CHESS MACHINE/SCHRODER, Schröder, ARM2</td>
<td>ZUGZWANG; Feldman, Mysliwietz, Parsytec T-800</td>
</tr>
</tbody>
</table>
The 23rd ACM International Computer Chess Championship
Indianapolis, Indiana, February 14-17, 1993
Danny Kopec, Monty Newborn, and Mike Valvo

With DEEP BLUE (formerly DEEP THOUGHT II) passing up the 23rd ACM International Computer Chess Championship, the tournament figured to be a wide open affair—and it was exactly that. When the final King fell, it was Don Dailey and Larry Kaufman’s program SOCRATES II that emerged victorious winning 4.5 points out of a possible 5. SOCRATES II ran on an IBM PC clone with an 80486 microprocessor running at fifty megahertz. Finishing one full point behind in second place was CRAY BLITZ, the work of Robert Hyatt, Albert Gower and Harry Nelson. Third place was shared by three programs each finishing with three points: B*HITECH, STARTECH, and ZARKOV. In addition to capturing first place, SOCRATES II also won the prize for the “Best Small Computing System.”

The current reigning World Champion program from the Netherlands, CHESS MACHINE SCHRÖDER, was unable to repeat the strong performance it put in when it won the World Championship last November 1992 in Spain, finishing here with 2.5 points and tying for sixth place with three other programs. KALLISTO, a second Dutch entry, put in a strong performance finishing with 2 1/2 points. It almost managed a draw in the final round with SOCRATES II, and that would have given it a second place tie with CRAY BLITZ.

SOCRATES II is a reworked version of Don Dailey and Larry Kaufman’s program that finished in sixth place (in a field of twelve) in last year’s ACM tournament. Their new version is written in C in contrast with assembly language in their previous version. Dailey, a class A chess player, has been involved in developing chess programs for the last eight years. His first program REX competed in the 1986 World Computer Chess Championship in Cologne, Germany. He and Kaufman teamed up shortly after that and have been working as a team ever since. Kaufman’s interest in computer chess dates back much further to when he was a student at MIT in the 1960s. He helped Richard Greenblatt with MAC HACK, the first program to win a game against a human in tournament competition. Kaufman assisted Greenblatt in developing MAC Hacks opening book, in developing the scoring function, and in testing the program. Kaufman ranks among the top one hundred players or so in the United States. Julio Kaplan, the third member of the team is also a very strong chess player.

CRAY BLITZ played its first round game on one processor of a Cray YMP/C90 located at Lawrence Livermore National Laboratory, switched to a Cray YMP/8 at Cray Research Computer Center for the second round, and then back to the Cray YMP/C90 for the final three rounds. In spite of the fact that it used sixteen processors on the YMP/C90 for the final three rounds and was searching 500,000 chess positions per second, CRAY BLITZ could do no better than draw those three games. CRAY BLITZ held the title of World Champion from 1983 through 1989.

STARTECH, a multiprocessor descendant of B*HITECH, finished with the same score as its parent. It ran on a 512-processor Connection Machine at the NCSA at the University of Illinois. It had some chance for a second place finish when, in the final round, it held a small advantage in its game against CRAY BLITZ.

The increasing strength of the entrants into these tournaments can be measured by the performance of BEBE. Throughout the 1980s, BEBE was consistently a strong performer in major chess around the world. It finished second in the 1984 and 1985 ACM tournaments and second in the 1983 and 1985 World Championships. However, Tony and Linda Scherzer’s BEBE has remained relatively unchanged over the years — relative to the rapid improvements made by the leaders in this event. For the last two years, BEBE has been able to gather in only a win each year, and that against the last place finisher.

In addition to the tournament, students from two Indianapolis schools, Indianapolis School 107 and Longfellow Junior High School, took on the computers on Sunday morning. Under the direction of Betty Hunt, approximately twenty students participated with ACM certificates going to Tim Blanton, Drew Hollinger, and Tenisha Jones for their excellent play.

DEEP BLUE, the work of Feng-hsiung Hsu and Murray Campbell at IBM’s T. J. Watson Research Laboratory in Yorktown Heights, passed up the event so that it could participate in two exhibition matches in Copenhagen, one against Danish Grandmaster Bent Larsen (FIDE rating approx. 2550) and a second against a Danish national team consisting of two IMs—Henrik Danielson (FIDE rating approx. 2450) and Carsten Hoi (FIDE rating approx. 2450)—and two GMs—Larsen and Lars Bo Hansen (FIDE rating approx. 2550). Larsen won his 4-game match with a score of 2 1/2 — 1 1/2. He won the first game and drew the remaining three. DEEP BLUE won the 4-game match against the Danish national team with a 3-1 score, defeating Danielson and Bo Hansen and drawing with Hoi and Larsen. The Larsen game was actually the same game as the fourth game in Larsen’s head-to-head match with DEEP BLUE. All in all, DEEP BLUE finished with a positive 4-3 score, a most impressive result and one that would suggest its level of play to be around 2560-2590 FIDE. DEEP BLUE ran on an IPBM RS/6000 550 workstation connected to 14 custom chess processors via a VXI cable. It was searching as many as 4-5 million chess positions per second.
23rd ACM INTERNATIONAL COMPUTER CHESS CHAMPIONSHIP
INDIANAPOLIS, INDIANA
FEBRUARY 14-17, 1993
FINAL STANDINGS

<table>
<thead>
<tr>
<th>Name</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Total Pts</th>
<th>Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SOCRATES II</td>
<td>1</td>
<td>2</td>
<td>2.5</td>
<td>3.5</td>
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ROUND 1

CHESS MACHINE SCHRÖDER - KALLISTO
1 e4 e5 2 Nf3 Nc6 3 d4 exd4 4 Nxd4 Nf6 5 Nxc6 bxc6 6 e5 Qa7 7 Qe2 Nd5 8 c4 Ba6
9 b3 O-O-O 10 g3 f6 11 Bb2 fxe5 12 Bg2 Re8 13 Nd2 Qf6 14 O-O Nb6 15 Rad1 Qf5
16 Be4 Qe6 17 Rfe1 Bc5 18 Bf3 Qf5 19 a4 Bb4 20 Bh5 g6 21 Bg4 Qg5 22 Bxe5 h5 23 Bh3 Rhf8
24 f4 Qa7 25 Qg2 Bb7 26 Kf1 c5 27 Qf2 Qd8 28 a5 Bxa5 29 Qxc5 Bxd2 30 Rxd2 Kb8 31 Qa5 d6
32 c5 Nd7 33 Bxd7 Rxe5 34 Rxe5 dxe5 35 c6 Bc8 36 Be6 Qe8 37 Rd7 1-0

BP - M CHESS PROFESSIONAL
1 e4 c5 2 Nf3 d6 3 d4 exd4 4 Nxd4 Nf6 5 Nc3 a6 6 Bg5 e6 7 f4 Qb6 8 Qd2 Qxb2 9 Nb3 Qa3
10 Bd3 Be7 11 O-O h6 12 Bxf6 Bxf6 13 e5 dxe5 14 Ne4 Nd7 15 f5 exf5 16 Rxf5 Be7 17 Bc4 Nf6
18 Rxe5 O-O 19 Rf1 Ng4 20 Rh5 Qxa2 21 h3 Qb2 22 hxg4 Bxg4 23 Bf7+ Kh7 24 Qd3 Kh8
25 Rd5 b5 26 Nec5 Ra7 27 Qe4 Bf6 28 Bg6 Bc8 29 Rd6 Rg8 30 Rfd1 a5 31 Bh7 Rf8 32 Ne6 Bxe6
33 Rxe6 a4 34 Nc5 a3 35 Nd7 Rxd7 36 Rxd7 a2 37 Rd1 Bd4+ 38 Kh2 a1Q 39 Rxa1 Qxa1
40 Bf5 Bf2 41 Kh3 Qh1+ 42 Kg4 b4 43 Kf3 Ba7 44 Ke2 Qh5+ 45 g4 Qh2+ 46 Kd3 Qg3+ 47 Ke2 g6
48 Qc6 Qf2+ 49 Kh1 f5 50 Re1 Rd8+ 51 Bd3 Rxd3+ 52 cxd3 Qxd3+ 53 Kc1 Be3+ 54 Rxe3 Qxe3+ 55 Kc2 Qe2+ 56 Kb3 Qd1+ 57 Kb2 Qd2+ 58 Kb3 Qc3+ 59 Qxc3+ bxc3

10
60 Kxc3 Kg7 61 Kd4 Kf6 62 Ke4 Kg5 63 Kf3 Kh4 64 Kf4 g5+ 65 Kf5 Kh3 0-1

B. HITECH - BEBE
1 e4 e5 2 Nf3 Nc6 3 d4 exd4 4 Nxd4 Bc5 5 Be3 Qf6 6 c3 Nge7 7 Qd2 d5 8 Nb5 Bxe3 9 fxe3 Kd8
10 exd5 Ne5 11 Qd4 Nf5 12 Qc5 Qh4+ 13 g3 Qe4 14 Qxc7+ Ke8 15 Nd2 Qxe3+ 16 Kd1 Nf3
17 Nc4 Qe1+ 18 KC2 Qf2+ 19 Kb3 Bd7 20 Qxb7 Ke7 21 d6+ Nxd6 22 Ncx6 Nd2+ 23 Kb4 Rhb8
24 Qg2 Qe3 25 Qd5 Be6 26 Bg2 Bxd5 27 Nf5+ Kf8 28 Nxe3 Bxg2 29 Nxg2 a6 30 a4 Nf3
31 Ra1 Ne5 32 c4 axb5 33 cxb5 Rxc8 34 b3 N3d4+ 35 Ka3 Rc5 36 b6 Rb8 37 Rd1 Nf2
38 Rc1 Rxcl 39 Rxc1 Rxb6 40 a5 Ra6 41 b4 Ng4 42 h4 Nf2 43 Ka4 Rd6 44 Ne3 Rd8 45 a6 Ra8
46 b5 g5 47 hxg5 Nf4 48 Ka5 N6d 49 Nd5 Nc8 50 b6 Nxb6 51 Kxb6 Kg7 52 a7 1-0

STARTECH - ZARKOV
1 d4 d5 2 c4 dx4 3 e4 e5 4 Nf3 exd4 5 Bxc4 Bb4+ 6 Nbd2 Nc6 7 O-O Nf6 8 e5 Ng4 9 h3 Nh6
9 Nb3 Ni5 11 Bb5 Bd7 12 Qd3 g6 13 Rd1 O-O 14 a3 Be7 15 Bf4 a6 16 Bxc6 Bxc6
17 Nfxd4 Qd5 18 Nxc6 Qx6c 19 Rac1 Qb6 20 e6 Rac8 21 g4 Bh4 22 Rd2 Rcd8 23 Qc3 Rxd2
24 Qxd2 Qxb3 25 gx5 fxe6 26 Rxc7 Rd8 27 Qe2 Qd1+ 28 Qxd1 Qxh1+ 29 Kg2 ex5
30 Rxb7 Rd3 31 Be3 Bf6 32 a4 a5 33 Rb5 Bd8 34 Rb8 Kf7 35 Rb7+ Kg8 36 Kf3 Bf6 37 Ke2 Rd5
38 Bb2 Re5+ 39 Kd3 Rd6 40 Kc2 Rc6+ 41 Kb3 Rd5 42 Bc3 Bxc3 43 Kxc3 Rc5+ 44 Kd3 Rd5+
45 Kc3 Rc5+ 46 Kd4 Rc2 47 Kf4 Rc5+ 48 Kf6 Rc6+ 49 Kg5 Rc5 50 b3 Rd4 51 h4 Rd2
52 Ra7 Rd3 53 Rxal Rxb3 54 Ra7 Rb2 55 a5 f4 56 Kf6 Rb8 57 Kg7+ Kh8 58 Re7 Kg8 59 a6 Rb6+ 60 Re6 1-0

CRAY BLITZ - NOW
1 e4 e6 2 d4 d5 3 exd5 exd5 4 Nc3 Bb4 5 Bd3 Qe7+ 6 Nge2 Bg4 7 O-O Bxc3 8 bxc3 Nf6
9 Rb1 b6 10 Bd3 c6 11 Bb2 O-O 12 c3 Bd7 13 Rd1 Re8 14 c4 dxc4 15 Bxc4 b5 16 Bf4 bxc4
17 Rxb8 Rxb8 18 Bxb8 c5 19 Bg3 cxd4 20 Nxd4 Qb4 21 Rxe8+ Nxe8 22 Qe2 Bd7 23 Kf2 a5
24 Bf4 a4 25 Qe5 a3 26 Qd5 Ba4 27 Ke2 c3 28 Kd3 Qb2 29 Qa5 Bd7 30 g3 Oxa2 31 Bc1 Nf6
32 Bxa3 Qa1 33 Qb4+ Be8 34 Be7 Qe1 35 Qc4 Qe3 36 Bxf6 gx6 37 Qxf6 Qe1 38 Qg5+ Kf8
39 Qh4 Bd7 40 Qxh7 Qd2 41 Qc7 Ke8 42 Qe5+ Kf8 43 h4 Kg8 44 h5 Qh6 45 g4 Qd2 46 g5 1-0

INNOVATION - Socrates II
1 d4 d5 2 c4 c6 3 exd5 cxd5 4 Ne3 Nf6 5 Bf4 Ne6 6 Nf3 Bb4 7 e3 e6 8 Nge3 Nxe5 9 Bxe5 Nd7
10 Bg3 a6 11 Bd3 Bxd3 12 Qxd3 Be7 13 O-O O-O 14 Rc4 Rf6 15 Qd4 a5 16 Bxa6 Bb6 17 Rc2 Nc4
18 Qd3 Qa5 19 Rac1 b4 20 axb4 Qxb4 21 Na2 Qa4 22 b3 Qa3 23 Qc3 Nd6 24 Bxb6 Bxb6
25 Qxc8 Rcc8 26 Rxe8+ Bf8 27 Rfc1 Qxb3 28 Ne1 Qb5 29 Rfc5 Qa4 30 g3 g6 31 Kg1 Kg7
32 Rcc7 Bd6 33 Rc6 Qb5+ 34 Ne2 Bb4 35 h4 a5 36 Rca2 a4 37 Kg2 a3 38 g4 Qd3 39 Nf4 Qe4+
40 Kg3 Bd6 41 Rf8+ e5 42 dxe5 Bxe5 43 Rc8 Qa4 44 f3 a2 45 Rc1 Bxf4+ 46 exf4 a1Q
47 Rxa1 Qxa1 0-1

ROUND 2

Socrates II - Chess Machine Schröder
1 d4 d5 2 c4 c6 3 Nc3 Nf6 4 e3 e6 5 f3 Nbd7 6 b3 Bb4 7 Bb2 O-O 8 B3 dx4 9 Bxc4 Ne5
10 Be2 Bxc3 11 Bxc3 Nce4 12 Bb4 c5 13 dxc5 Qc7 14 Qd4 a5 15 Ba3 Rd8 16 Qe5 Qb8
17 Qxb8 Rxb8 18 Ne5 Bd7 19 f3 Ne3 20 Bd2 Na4 21 Bc4 Rcc8 22 Nbd4 Bc6 23 O-O Nd7 24 Rac1
f5 25 e5 dxe5 26 Be3 a8 27 Cd2 Ne6 28 Rc2 Nd4 29 Bxd4 Rxd4 30 Rb1 Rcd8 31 Rab h5
32 Kf2 Kh8 33 Ra3 Ki7 34 Ke3 g5 35 Rc1 Ke6 36 Bd1 Ke7 37 Bxa4 Bxa4 38 Rcc6 Bc6
39 Rxal Kf7 40 Ra7 Kg8 41 a4 a4 42 a5 g4 43 Nb4 Rd2 44 Rd3 Rxd3+ 45 Nxd3 Qxf3
46 gxf3 Ra2 47 f4 exf4+ 48 Nxf4+ Kf7 49 Nxd5 Ra3+ 50 Kh4 Ra4 51 h3 Kf6 52 Nx6 Ra3
53 N6d5 Rxh3 54 a5 bx6 55 Rxa6 Be8 56 c6 Rh1 57 Ra8 Kf7 58 Ra7+ Ki8 59 c7 Bd7 60 Ke5 Kg1
61 Kd6 Kg4 62 Ra8+ 1-0

M Chess Professional - Cray Blitz
1 e4 e5 2 Nc3 Nc6 3 f4 exf4 4 Nf3 g5 5 d4 g4 6 Bc4 gxf3 7 O-O d5 8 exd5 Bg4 9 Qd2 Na5
10 Bb5+ c6 11 Qxf4 Nf6 12 Re1+ Kd7 13 dxc6+ bxc6 14 Ne4 Nxe4 15 Qxg4+ Kc7 16 Rxg4 cx5
17 Qxf3 Qd7 18 Rf4 Be7 19 Rxf7 Ra8 20 Bf4+ Kb6 21 Be5 Rhg8 22 c3 Nc6 23 Re1 Qe8
24 Rx18 Qx18 25 Qd5 Rg5 26 a4 bxa4 27 c4 Nxe5 28 Rxe5 Rxe5 29 Qxe5 Qd8 30 c5+ Kb8
31 Qe2+ Kb4 32 Qd3 Bf6 33 Qc3+ Kb5 34 Qd3+ Kc6 35 Qf3+ Kd7 36 Qe4 Qe7 37 Qb7+ Ke8
38 Qa8+ Qd8 39 Qc6+ Kf7 40 Qb7+ Kf8 41 d5 Qe7 42 Qb8+ Kf7 43 Kf1 Bxb2 44 g4 Bc3
45 Kf2 Qxc5+ 46 Kf1 Qc4+ 47 Kf2 Qd4+ 48 Kf3 Qd1+ 49 Ke3 Bd2+ 50 Kf3 Qe1+ 51 Kg2 Qe2+
0-1

STARTECH - B* HITECH
1 d4 Nf6 2 c4 g6 3 Nc3 Bg7 4 e4 d6 5 f3 c6 6 Bd3 Nbd7 7 f4 e5 8 fx e5 dxe5 9 d5 Nc5
10 Nf3 Qb6 11 dxe6 Bxc6 12 Bc2 O-O 13 Ng5 Bg4 14 Qd2 h5 15 Nf3 hxg5
17 h4 Qg4 18 Qe2 Rd4 19 O-O Qxc4 20 Bxg5 Qd4 21 Bxfl Bxf6 22 Rxf6 Qxf6 23 Rxe6+ Kh7
24 Rb1 Qxc3 25 Rg5 Ne6 26 Qf2 Nxg5 27 Qf5+ Kh8 28 Qf6+ Kh7 29 Qf5+ Kh6 30 Qf6+ Kh5
1/2 - 1/2

ZARKOV - BEBE
1 e4 c5 2 Nf3 d6 3 d4 cxd4 4 Nxd4 Nf6 5 Nc3 g6 6 Bg5 Bg7 7 Bc4 O-O 8 Bb3 Qa5 9 Qd2 Nc6
10 Nxc6 bxc6 11 h3 Ba6 12 O-O-O Rfb8 13 Qe3 Rb7 14 g4 Re8 15 Bh6 Bxh6 16 Qxh6 Qe5
17 Qc5 Kb8 18 Bc4 f5 Bxb3 20 cxb3 Kh8 21 fxg6 fxg6 22 Rhi1 a5 23 Qh4 Qe5 24 g5 Nh5
25 Rf3 Re8 26 Qf2 Rg8 27 h4 Ng7 28 Rdd3 Ne6 29 Rde3 Rg7 30 Re1 Rb8 31 Qa7 Rbg8
32 Re1 f5 33 Rh3 Nf4 34 Re3 Qd4 35 Re3 Ne2 36 Qb7 Nxc3+ 37 Bxc3 Qe5 38 Rf1 e6
39 Qc6 Ra7 40 Rf8 Rfx8 41 Rfx8+ Kg7 42 Qe8 Qxe4+ 43 Kb2 Qg2+ 44 Ka3 1-0

NOW - BP
1 e4 e5 2 Nc3 Nf6 3 Bc4 Bxc5 4 d3 d6 5 Na4 Bb4 6 c3 d5 7 exd5 Bxd5 8 Bg5 a6 9 d4 exd4
10 Qxd4 b5 11 Qe3+ Qe7 12 Bc4 Bxc4+ 13 fxe3 Qxg6 14 Bd3 Bb7 15 e4 Rg8 16 g3 bxa4
17 Ne2 Nd7 18 O-O h5 19 Kh1 h4 20 gxh4 Rh4 21 Nd4 Ne5 22 Bc2 Nxe4 23 Rae1 Bxd5
24 c4 Bb7 25 c5 Bxc5 26 Nf3 Kf8 27 Bxe4 Rxe4 28 Rc1 Bb6 29 Rc2 Rxc4 0-1

KALLISTO - INNOVATION
1 e4 c6 2 d4 d5 3 Nc3 dxe4 4 Nxe4 Nf6 5 Nxf6+ gxf6 6 c3 Bf5 7 Bf4 Nd7 8 Nf3 Qb6
9 Qc1 O-O-O 10 Be2 Bg7 11 O-O e5 12 Be3 Qa5 13 Bc4 Be6 14 Bxe6 fxe6 15 dxe5 Nxe5
16 Nxe5 fxe5 17 Qc2 Kb8 18 Rfe1 Qa3 19 f3 Rd3 20 Qb3 Re8 21 Ral Rd5 22 c4 Rdd8
23 Bc5 Qa5 24 Bb4 Qc7 25 Qa3 Rxd1 26 Rxd1 Ka8 27 Bc5 b6 28 Bd6 Time Default 1-0

ROUND 3
CRAY BLITZ - SOCRATES II
1 e4 e5 2 Nf3 Nf6 3 Nc3 Bb4 4 Nxe5 O-O 5 Be5 Re8 6 Nd3 Bxc3 7 dxc3 Nxe4 8 O-O d5 9 Nf4 c5
10 Be3 Nd6 11 Re1 Bf5 12 Qd2 Nd7 13 b3 Qa5 14 Bd3 Ne4 15 Bxe4 Rx e4 16 a4 Rae8
17 Ne2 Bg6 18 Nf4 Rxe7 19 Nxe6 hxg5 20 Re2 Nf6 21 b4 Qc7 22 f3 b6 23 Rae1 c5 24 b5 Re6
25 Bg5 Qd6 26 g3 Rxe2 27 Rxe2 Qd7 28 Kg2 Rxe2+ 29 Qxe2 Ne8 30 Bf4 f6 31 h4 Kf7
32 Qd2 Qe6 33 Qe3 Qxe3 34 Bxe3 Nd5 35 Bf4 Ke6 36 Bxd6 Kxd6 37 Kf2 Ke5 38 Ke3 f5
39 f4+ Ke6 40 Kd3 c4+ 41 Kd2 Kf7 42 Kd1 1/2 - 1/2

CHESS MACHINE SCHÖDÉRER - BP
1 e4 e5 2 Nf3 Nc6 3 d4 exd4 4 Nxd4 Be7 5 Be3 Qe6 6 c3 Nge7 7 Bc4 Ne5 8 Bc4 Qg6 9 O-O d5
10 Bh5 Qxh5 11 Nb5 Bd6 12 Be5 Kd7 13 Nd2 Qd3 14 Bxd6 exd6 15 Be2 Qg6 16 Qa4 e6
17 f4 Nc5 18 Rae1 Rb8 19 Nd4 Kc7 20 b4 Nxd4 21 exd4 Nc6 22 Rc1 Re8 23 Bxe6 Kd8
24 Qb5 Bh3 25 Rf2 bxa6 26 Qxc6 Rc8 27 Qb6+ Kd7 28 Rxc8 Rxc8 29 Qxa6 Ral+ 30 Nf1 Be6
31 Qa5 Rb1 32 Qa7+ Kc8 33 b5 Qd3 34 f5 Bd7 35 b6 Kd8 36 b7 Qb5 37 Qb8+ Ke7 38 Qc7 Qd3
39 b8Q Rx8+ 40 Qxb8 Qxd4 41 Ng3 Qa4+ 42 Rh1 Qc3 1-0

M CHESS PROFESSIONAL - STARTECH
1 e4 e5 2 Nf3 Nc6 3 Bb5 a6 4 Bxc6 dxc6 5 O-O f6 6 d4 exd4 7 Nxd4 c5 8 Nb3 Qxd1 9 Rxd1 Bg4
10 f3 Be6 11 Bf4 c4 12 Nd4 O-O-O 13 Nc3 Rxd4 14 Rxd4 Bc5 15 Ne2 Ne7 16 Kf1 Bxd4
17 Nxd4 Bd7 18 Rd1 Re8 19 Kf2 f5 20 Bg3 fx e4 21 fx e4 Nc6 22 Ke3 Nb4 23 Kf4 Nxa2
24 c3 Rf8+ 25 Ke3 c5 26 Nf3 Ba4 27 Ra1 Bb3 28 Bd6 Rf6 29 Bxc5 Rc6 30 Kd4 b6 31 Ba3 b5
12
32 Nd2 Rf6 33 h3 a5 34 Ke5 b4 35 cxb4 axb4 36 Bxb4 Rf2 37 Nxb3 cxb3 38 Ba3 Rc2+
39 Kd6 Rxe2 40 e5 Rd2+ 41 Ke7 Rd3 42 Rf1 Rxe3 43 e6 Rd3 44 Rf8+ Ke7 45 Kf7 g5 46 Bc5 g4
47 e7 Rd7 48 Ke6 Rxe7+ 49 Bxe7 Kb7 50 Rf7 Ke6 51 Bd6 h5 52 Rh7 1-0

B) HITECH - ZARKOV

1 e4 e5 2 Nf3 Nc6 3 d4 exd4 4 Nxd4 Bc5 5 Be3 Qf6 6 c3 Nge7 7 Qd2 a6 8 f4 d5 9 e5 Qh4+
10 g3 Qh5 11 Bg2 Bh3 12 Bf3 Bg4 13 Bg2 Nxd4 14 Bxd4 Bxd4 15 cxd4 O-O 16 0-0 c6
17 Rf2 Rfe8 18 Nc3 Nf5 19 Na4 Re6 20 Nb6 Rae8 21 Qd3 Rg6 22 Rc1 Rh6 23 Bh1 Qg5
24 Na4 Ra8 25 Nc5 b6 26 Na4 b5 27 Nc5 a5 28 Rcf1 a4 29 Qc3 Rc8 30 Ra1 Re8 31 b3 a3
32 b4 Ra8 33 Nb3 Qe6 34 Na5 Rc8 35 Rd2 f6 36 Qxa3 fxg5 37 fxg5 Qd7 38 Rf1 Bh3 39 Rf4 Re8
40 Nb3 Qd8 41 Nc5 Re8 42 Rd2 g5 43 Rf4 Bg4 44 Rd3 Bh3 45 Qc1 Ng7 46 Rxf8+ Qxf8
47 Qd1 Ne6 48 Rf3 Qe8 49 Ra3 Qf8 50 Rxex6 51 g4 Rh6 52 Bf3 Bxe4 53 Ra6 Qc3
54 Kh1 Rg6 55 a3 Kh8 56 a4 Rg8 57 e6 Re8 58 Be2 Rxe6 59 axb5 Rxe6 60 Ra8+ Kg7
61 Ra7+ Kf6 62 Qf1+ Bxf1 63 Rf7+ Kxf7 64 Kg1 Bf3 65 bxc6 Qc+0-1

NOW - KALLISTO

1 d4 Nf6 2 c4 g6 3 Nc3 d5 4 Nf3 Bg7 5 Qb3 dxc4 6 Qxc4 O-O 7 e4 Na6 8 Qa4 c5 9 Bxa6 cxd4
10 Nxd4 bxa6 11 Be3 Ng4 12 Nc6 Bd7 13 Rd1 Nxe3 14 fxe3 Bxe3 15 Qxe6 Qb8 16 Nd5 Qxb2
17 Nxe7+ Kh8 18 Bh4 O-O 19 Qa2 19 Na5 Rac8 20 Qd6 Rc8 21 Qg3 Re2 22 Rh1 15 23 Nf4 Rb2
24 Rxb2 Qxb2 25 Ne6 Be5 26 Qh3 Rc8 27 Ng5 h5 28 Nf7+ Kg7 29 exf5 Rc1 30 Ne5 Rxh1+
31 Kxf1 Qb5+ 32 Kf2 Qxe5 33 fxg6 Qb2+ 34 Kg3 Qf6+ 35 Kg2 Qb2+ 36 Kd3 Qb4+ 37 Kd4 Qb4+
38 Kd5 Qb5+ 39 Ke4 Qc6+ 40 Kg4 Qc6+ 41 Kg4 Qc6+ 42 Kg4 Qc6+ 43 Kg4 Qc6+ 44 Kg4 a5+
45 Kb3 Qb5+ 46 Kc3 Qe5+ 47 Kd2 Qb2+ 48 Kd3 Qb2+ 49 Kg1 Qb4+ 50 Kg5 Qb4+ 51 Kg6 Qb4+
52 Kf5 Qc3+ 53 Kd5 Qd3+ 54 Ke5 Qe3+ 55 Kd5 Qd3+ 56 Ke5 Qc3+ 57 Kd6 Qb4+ 58 Kg5 Qb4+
59 Ke4 Qc4+ 60 Kg6 61 Kc1 1/2 - 1/2

BEBE - INNOVATION

1 e4 c5 2 d4 d5 3 Nc3 dxe4 4 Nxe4 Nf6 5 Nxf6+ gxf6 6 c3 Bf5 7 Ne2 h5 8 h4 Nd7 9 Ng3 Bg4
10 Be2 Bxe2 11 Qxe2 Qa5 12 O-O O-O-O 13 c4 e4 14 Bf4 Bh6 15 Bd6 Rgd8 16 b4 Qb6
17 Ne4 Rhg 18 Bc4 Bxc5 19 Nd6+ Kd7 20 dxc5 Qxb4 21 Rab1 Qxc5 22 Rfd1 Qxd6
23 Rxb7+ Kc8 24 Rxd6 Kxb7 25 Rd7+ Ka8 26 f3 Rxh4 27 Qf2 1-0

ROUND 4

SOCRATES II - M CHESS PROFESSIONAL

1 d4 Nf6 2 c4 e6 3 Nc3 Bb4 4 Qc2 c5 5 dxc5 O-O 6 a3 Bxc5 7 Nf3 d5 8 exd5 exd5 9 Bg5 Be6
10 e5 h6 11 Bh4 a5 12 Rd1 Be7 13 Be2 Rce8 14 O-O Ne4 15 Nxe4 Bxh4 16 Nxe4 Qxh4
17 Nd6 Nd4 18 Qd3 Nxe2+ 19 Qxe2 Rb8 20Nb5 a6 21 Na4 Rbc8 22 h3 Qg5 23 Qf3 Rc7
24 Rc1 Rfc8 25 Rxe7 Rxe7 26 Rb1 Bd7 27 Re1 Re5 28 Rd1 Rc8 29 b3 Re3 30 a4 Qg5
31 Kh1 Bg4 32 a5 Bd7 33 Qe2 Qd8 34 Qd2 Qc7 35 Kg1 Rc6 36 b4 Rc4 37 Rb1 Qd6 38 Qa2 Qf6
39 Kh1 Bf5 40 Kg1 Qh5 41 Re1 Be4 42 f3 Bg6 43 Qd2 Qe5 44 Rd1 Qc7 45 Ne2 Bc2 46 Ra1 Qd7
47 Rc1 Bf5 48 g4 Be6 49 Nd4 Qc7 50 Rb1 Be7 51 Bb5 h5 52 Kg2 hxg4 53 hxg4 Bd7 54 b6 Qc5
55 Ra1 Rd5 56 Ra2 Qc8 57 Ne2 Rc4 58 Nf4 d4 59 exd4 Qc6 60 g5 Qd6 61 Ne2 Qd5 62 Kg3 Bf5
63 Kf2 Kf8 64 Qf4 Rc6 65 Ra3 Kg8 66 Qe5 Qd7 67 Ra3 Kh8 68 Ng3 Bg6 69 Ne4 Rc2+
70 Kg3 Bxe4 71 Qxe4 Rc6 72 Qh7 Re8 73 Rc3 Rc6 74 Qh8+ Ke7 75 Rxe6 Bxc6 76 Qxg7 Qc1
77 Qe5+ Kd7 78 Qd5+ Kf8 79 Kg4 Qg1+ 80 Kf5 Qh1 81 Qe8+ Kf7 82 Qb6+ Kg7 83 Qxb7 Qh3+
84 Ke4 Qe6+ 85 Kf4 Qd6+ 86 Kg3 Qa3+ 87 Ke4 Qxa3+ 88 Qc7 Qe1+ 89 Kd5 Qf1 90 b7 Qf3+ 91 Kc6 Qf4+ 92 Kc6 Qe4+ 93 d5 Qc4+ 94 Kb6 Qxd5 1-0

CHESS MACHINE SCHRÖDER - CRAY BLITZ (Annotated by Danny Kopec)

This Fourth Round was a key in the tournament as at this point CRAY BLITZ was tied for first with Socrates, with two-and-a-half out of three points and CHESS MACHINE SCHRÖDER was in close striking distance with 2/3. The play also proved very double-edged. CHESS MACHINE SCHRÖDER had the edge in the opening. CRAY BLITZ struck back in the middlegame-ending winning the exchange. Finally, after some technical errors on CRAY BLITZ’s part the game ended in a clear draw.
1 e4 e5 2 Nf3 e6 3 d4 cxd4 4 Nxd4 Nf6 5 Nc3 d6 6 Be2
A standard position from the Scheveningen Variation (...Nf6, ...e6, ...d6) of the Sicilian Defence. Here White had the choice of the more aggressive Keres Variation with 6 g4. The text is arguably White's most solid move in this position.
6 ... a6 Black chooses the most "Classical" System, noted for its flexibility and solidity.
7 O-O Qc7 This is part of the Classical System. The text fits particularly well with Black's previous move and control of the e5 square.
8 a4 Clearly the main purpose of this move is to stop 8 ...b5, which, for example 8 Be3? would allow. White's main alternative here is 8 f4 when Black usually continues with 8 ...Be7.
8 ... Bd7 A safe, solid development mostly with the idea of recapturing on c6 (after ...Nc6, Nxc6) with the B.
9 Be3 Be7 10 f4 There are many transpositional aspects to the move order chosen by both sides.
10 ... 0-0 11 g4 It takes great judgement and understanding to distinguish when in such positions g4 is a strong move and not just a weakening move. One rule of thumb is the notion that Black should be able to meet the thrust on his N(g5) with Nd7. In this position that is clearly not an option. If 11...e5 here, then 12 Nf5 Bxf5 13 exf5 with g5 and Nd5 looming.
11 ... h6 An alternative sometimes available for Black in positions like this could be 11 ...Be8 in order to meet ...g5 with ...Nd7, but then after 12 g5 Nd7 13 f5! Black would be in serious trouble. Clearly the culprit responsible for Black's opening difficulties was 8 ...Bd7.
12 g5!? 12 h4 would be more consistent with the idea of following with g5 and recapturing with the h-pawn while retaining control of e5.
12 ... hxg5 13 fxg5 Nh7 14 Nf5!? The sharpest move but safer for White may be 14 h4
14 ... Nc6 Instead the game continuation seems to facilitate Black's completion of his development.
14 ... exf5 15 Nd5 Qd8 16 Bb6 Qe8 17 Nc7 Qc8 18 Nxa8
15 Nxe7+ Nxe7 16 Qd3 Although with the capture of Black's KB the game has left typical Sicilian positions, Black has a clear and consistent plan to effect d5.
16 ... Be6 17 Qd4? An unfortunate "remove" with the WQ.
17 ... d5 18 Bf4 Qd8 19 Rad1 dxe4 Black's ability to fight in the center with pawns has more than compensated for White's two bishops.
20 Nxe4 Qxd4+ 21 Rxd4 Nf5 22 Rb4 a5 23 Rc4 Bd5

Position after 23 ... Bd5
24 g6 It is hard to fathom this move. It is possibly a result of the “horizon effect”. White expects counterplay on e6 for exchange which Black will gain.

24 ... fxg6 25 Bd3 Bxc4 26 Bxc4 Although in retrospect 24 g6 does not look as desperate as earlier in that Black’s K-side pawn structure has been destroyed, Black should reply more actively here e.g. 26 ...Nd4. Then on 27 c3 Rac8 28 Bd3 (28 Nd6? Rxc4 and Ne2+ wins) e5 is possible.

26 ...Kh8? 27 Bxe6 Nd4 28 Bc4 Rac8 29 Bd3 g5 30 Bd2 Nf3+ 31 Kg2 Nxd2

32 Nxd2 Rf4 Too little too late. White is now able to build a Q-side fortress which more or less assures a draw.

33 b3 Nf6 34 Re1 Rd4 35 Nf3 Rb4 36 Re5 Ng4 37 Rxa5 Ne3+ 38 Kf2 b6

39 Rg5 Nxc2 40 Ne5 Kg8

Position after 40 ... Kg8

41 Bc4+ Black is now forced to give up the exchange to avert losing.

41 ... Rxc4 42 bxc4 Rxa4 43 Kf3 b5 44 cxb5 Nd4+ By this point there is no doubt that a draw will be the outcome.

1/2 - 1/2

ZARKOV - KALLISTO

1 d4 Nf6 2 c4 g6 3 Nc3 d5 4 Nf3 Bg7 5 Bf4 O-O 6 cxd5 Nxd5 7 Nxd5 Qxd5 8 Bxc7 Bg4 9 e3 Rce8

10 Bf4 Nc6 11 a3 g5 12 Bg3 Rd8 13 Bd3 Bxf3 14 Qxf3 Qa5+ 15 Kf1 e5 16 Qe5 exd4

17 Qxe4+ Kf8 18 exd4 Rxd4 19 Re1 Rad8 20 Be2 Rd2 21 Qh5 Rxb2 22 f4 Nd4 23 Qxg5 Rd5

24 Qg4 Nxe2 25 Rxe2 Rd1+ 26 Be1 Rxe1+ 27 Rxe1 Qb5+ 0-1

BP - B* HITECH

1 e4 e5 2 Nf3 Nc6 3 Bb5 a6 4 Ba4 Nf6 5 O-O Nxe4 6 d4 b5 7 Bb3 d5 8 dxe5 Be6 9 c3 Bc5

10 Nd2 O-O 11 Bc2 Nxf2 12 Rxf2 f6 13 exf6 Bxf2+ 14 Kxf2 Qxf6 15 Nf1 Ne5 16 Be3 Nxf3

17 gxf3 Rf7 18 f4 Qh4+ 19 Kg1 Re8 20 a4 Bf5 21 Bxf5 Rxf5 22 axb5 axb5 23 Ng3 Rf7

24 Qxd5 h6 25 Rh6 Rxa6 26 Qxa6+ Kh7 27 Qc6 Re7 28 Bd2 Qg4 29 Qxb5 Qd1+ 30 Nf1 Re2

31 Qd3+ Kh8 32 Qd8+ Kh7 33 Qd5 Qc2 34 f5 c6 35 Qf7 Qe4 36 Qg6+ Kh8 37 b4 Qb1

38 Bxh6 gxh6 39 Qxh6+ Kg8 40 Qg5+ Kh8 41 f6 Qa2 42 Qh6+ Ke8 43 Qh5+ Kf8 44 Qc5+ Kf7

45 Qxc6 Qa7+ 46 Kh1 Qf2 47 Qb7+ Kxh6 48 Qc6+ Ke5 49 Qb8+ Kd5 50 Qb5+ Kc6 51 Qd3+ Ke5

52 Qb5+ Kf6 53 Qc6+ Ke7 54 Qc7+ Ke6 55 Qe8+ Kd5 1/2 - 1/2
BEBE - STARTECH
1 e4 e5 2 Nf3 Nc6 3 Bb5 a6 4 Ba4 Na6 5 O-O Nxe4 6 d4 b5 7 Bd3 d5 8 dxe5 Be6 9 c3 Bc5
10 Nbd2 O-O 11 Bc2 Nxf2 12 Rxf2 f6 13 exf6 Bxf6+ 14 Kxf6 Qxf6 15 Kg1 Rae8 16 Nf1 Ne5
17 Be3 Nxf3+ 18 gxf3 Qxh3 19 Bh3 Bb4 20 Qxf1 Rxh3 21 Ng3 g6 22 Bb3 c6 23 a4 Re6
24 axb5 axb5 25 Bd4 h5 26 Ra4+ Kf7 27 Ra7+ Ke8 28 Ra8+ Kd7 29 Bl2 b4 30 Bd1 Rd3
31 Ra1 bxc3 32 Bxc3 Rxc3 33 Ne2 R4c 34 Nd1 Ng4 35 Nd3 Bxd1 36 Rxd1 Ke7 37 Ra1 Kf6
38 h3 Kf5 39 Re1 Re2 40 Bh4+ Ke4 41 Nf4 Re3 42 Nxe6 Rxe6 43 Rf4+ Ke3 44 Bf2+ Kd2
45 Kg2 Rxfe4 46 Nfxe4 Rb3 47 Nhx5 Rb8 48 Nf4 Re8 49 Bd4 Re4 50 Bg7 d4 51 Bh6 Ke2
52 Kf3 Re3+ 53 Kg4 Re8 54 Ng2 d3 55 Ne3+ Rxe3 56 Bxe3 d2 0-1

INNOVATION - NOW
1 d4 e6 2 c4 Nf6 3 Nc3 Bb4 4 e3 O-O 5 Nge2 d5 6 a3 Be7 7 cxd5 exd5 8 b4 Bd6 9 g3 c6
10 Bg2 Bf5 11 O-O Nbd7 12 Qb3 Bd3 13 Bd2 Re8 14 f3 Nbd 15 Rag1 Bc4 16 Bb1 Bf8 17 Rf2 a5
18 bxax5 Rxa5 19 a4 Qc7 20 Re1 Cc8 21 Qc2 Ra8 22 Bb4 Ra5 23 Be1 Qe7 24 Bh3 Kh8
25 Bf5 Ra7 26 Nd1 Ra6 27 Nb2 Be1 28 Rf1 Bxe2 29 Qxe2 Bb4 30 Qe2 Ba3 31 Qb3 Bb4
32 Nd3 Bd6 33 a5 Nc4 34 Qxh7 Qxb7 35 Rxh7 Nxa5 36 Rb1 Nc4 37 Re1 g6 38 Bh3 Kg7
39 Bg2 Bb6 40 Nb4 Rb6 41 Bf1 Bb6 42 Bc4 dxc4 43 Bd2 Re8 44 Nxc6 Rxb1 45 Nxb8 Re1+ 46
Bxe1 Bxb8 47 e4 Ne8 48 Bc3 Nd6 49 d5+ f6 50 e5 Nb5 51 exf6+ Kf7 52 Bd2 c3 53 Bg5 c2
54 Kf2 Bb6 55 Ke2 Ba5 56 h4 c1=Q 57 Bxc1 Bxc1 58 Kd3 Kxf6 59 f4 Nf6 60 Ke2 Ne4 61 Kf3 Nc3
62 d6 Ke6 63 Kg4 Nxd5 64 Kg5 Nf6 65 d7 Nxd7 66 Kg4 Nf6+ 67 Kg5 Ne4+ 68 Kg4 h5+ 69 Kf3 0-1

ROUND 5

KALLISTO - SOCRATES II
1 c4 e5 2 Nc3 Nf6 3 Nf3 Ne6 4 g3 Bb4 5 Bg2 O-O 6 O-O e4 7 Ng5 Bc6 8 Bxc3 Re8 9 f3 exf3
10 Nxf3 d5 11 d4 Ne4 12 Qc2 dxc4 13 Rb1 f5 14 g4 g6 15 Ne1 fxg4 16 Bxe4 Nxd4 17 Qb2 Rxe4
18 cxd4 Qxd4+ 19 Qxd4 Rxd4 20 Bb6 Rd8 21 Rf4 c6 22 Rxc4 Be5 23 Ra4 b6 24 e4 Kf7
25 Bg5 Re8 26 Nd3 c5 27 Kf2 Bf7 28 Rc4 Rac8 29 Ke3 Ke6 30 Nf4+ Ke5 31 Nd5 Re8
32 Bf4+ Ke6 33 Nc7+ Ke7 34 Rd1 Rf7 35 Bg5+ Ke8 36 Bh6+ Kg8 37 Nd5 Bb5 38 Re3 Rf3+ 39
Kd2 Kf7 40 Be3 Rd8 41 Kc1 Bc6 42 Ra3 Rd7 43 Kc2 Ke6 44 Nf4+ Ke5 45 Nd3+ Kxe4
46 Nf2+ Kf5 47 Rd7 Bxd7 48 Rxa7 Rxe3 49 Rxd7 h5 50 Rd8 Ra3 51 Kb2 Rf3 52 Ke1 c4
53 Rb8 g5 54 Kd1 Ra3 55 Rxb6 Rxa6 56 Rhb3 57 Rf8+ Ke5 58 Re8+ Kd5 59 Rd8+ Kc4
60 Rc8+ Kd4 61 Ke1 c2 62 Rd8+ Ke3 63 Rd3+ Kf4 64 Rc3 Ke5 65 Rc5+ Kd4 66 Rc8 Rb2
67 Rc7 Rd1+ 68 Kg2 Re7 69 Nh3 Rd1 70 Rf7+ Kc4 71 Rc7+ Kd5 72 Kxc2 Rhx2+ 73 Kc3 Ke6
74 Kd6+ Kf5 75 Rc6+ Ke6 76 Re6+ Ke7 77 Rg6 g3 78 Rxe5 h4 79 Re5+ Kf6 80 Rd5 g2
81 Rb6+ Kf5 82 Rb5+ Kg4 83 Rb1 Kg3 84 Re1 Rh3 85 Re3+ Kg4 86 Re4+ Kf3 87 Rf4+ Ke3
88 Kg4 g1Q 0-1

STARTECH - CRAY BLITZ
1 d4 d5 2 c4 c6 3 Nc3 dxc4 4 e4 e5 5 Nf3 exd4 6 Qxd4 Qxd4 7 Nxd4 Bc5 8 Be3 Nf6 9 Bxc4 Ng4
10 Nf5 Nxe4 11 Nxe4 Bxe4 12 f3 f6 13 b4 a5 14 b5 Na6 15 h3 Be6 16 hxg3 b5 17 h4 bxc4
18 O-O Rhd8 19 Rf2 c5 20 Bf3 Rab8 21 Rc2 Rac8 22 Rb1 Nd7 23 Rb5 Ra8 24 e5 Ra7
25 Nd5+ Kf8 26 Be4 Rac8 27 Bc7 Rf4 28 Rxc7 Kh8 29 Rh3+ Kg8 30 Re3 Kh7 31 Ke2 Ke8 32 f3 Kf7
33 Ke2 Ke7 34 g3 Rcg8 35 Kd2 Kf6 36 f4 Ke8 37 Kg4 Rhg8 38 Kf4 Kf7 39 Kg4 Ke8 40 f5
Rh5+ 41 Kxh5 Bxh5 42 Kg4 Le6 43 Kf3 Rf8 44 Kxe3 Rg8 45 Kf4 Rh8 46 Kg4 Rd8 47 Kf4 Kg7
48 Kf5 Bc5 49 Kf6 Rh6 50 Kg5 Kg7 51 Kg6 Rh7 52 Kg5 Kg7 53 Kg4 Kg7 54 Kg3 Kg7 55 Kg2 Kg7
56 Kg1 Kg7 57 Kg1 Kg7 58 Kg1 Kg7 59 Kg1 Kg7 60 Kg1 Kg7 61 Kg1 Kg7 62 Kg1 Kg7 0-1

B* HITECH - CHESS MACHINE SCHRÖDER
1 e4 c5 2 d4 d5 3 Ne5 c5 4 Nxe5 dxe5 5 f3 Qc8 6 Bc4 g6 7 Bg5 Bg7 8 Be3 e6 9 Na3 Nf6 10 Nxc5 Bf5 11 O-O Bb5 12 Rb1 d4 13 Nf4 Qc7 14 Bxf6 Qxf6 15 Kd2 Bb4 16 Be4 Bxe3 17 fxe3 Nf6 18 Kc3 dxe3 19 Bxe3 Bxe3 20 Rxe3 Rxe3 21 Kxe3 Resign
46 c5 Bc7 47 Ke4 Bb8 48 b5 Ke7 49 a4 Kd7 50 Kd5 Ke7 51 a5 Kc8 52 Bg4+ Kc7 53 c6 Kd8
54 b6 axb6 55 axb6 h5 56 Bxh5 Ke7 57 Bf3 Kd8 58 Ke6 g4 59 Bxg4 f3 60 Bxf3 Bg3 61 Kf7 Kc8
62 Bd1 Kb8 63 c7+ Bxc7 64 b6c7+ Kxc7 65 g4 1-0

**NOW - BEBE**

1 d4 Nf6 2 c4 c5 3 d5 e6 4 Nc3 exd5 5 cxd5 d6 6 e4 g6 7 Bd3 Bg7 8 Nge2 O-O 9 O-O a6
10 a4 Qc7 11 Bg5 Nbd7 12 Ng3 Re8 13 a5 h6 14 Bf4 g5 15 Be3 Ne5 16 Be2 Neg4 17 Bd2 b5
18 f3 Ne5 19 f4 gxf4 20 Bxf4 Kh7 21 Nh5 Nxe5 22 Bxe5 Ng6 23 Qf3 b4 24 Na4 Nxf4
25 Qxf4 Ra7 26 Rfc1 Re5 27 Bxe5 Qxa5 28 Bd3 Qd8 29 Kh1 Kh8 30 Re1 Rae7 31 Rf1 c4
32 Bxc4 Rxe4 33 Qc1 a5 34 Bb5 Bb7 35 Bc6 Ba6 36 Rd2 Qb8 37 Qb1 Qa7 38 Rf3 Qd4
39 Qc1 Bc4 40 Rf5 Re2 41 Rf3 Bxd5 42 Bxd5 Qxd5 43 Qc8+ Kh7 44 Rf1 Bxb2 45 Nxb2 Rxb2
46 Qf8 Rxe2 47 Qxe2 Rg7 48 Qd7 Qe6 49 Qxe6 fxe6 50 Ra1 Rxc5 Rc1+ 52 Kg2 Kg7
53 Rb5 Rc4 54 Rb6 Rd4 55 Rb3 0-1

**M CHESS PROFESSIONAL - ZARKOV**

1 e4 e5 2 Nf3 Nc6 3 Bb5 a6 4 Bxc6 dxc6 5 O-O f6 6 d4 Bg4 7 c3 exd4 8 cxd4 Bxf3 9 Qxf3 Qxd4
10 Rd1 Qe5 11 Qg4 Qe7 12 Nc3 Qf7 13 Bf4 Bb4 14 Ne2 g5 15 a3 h5 16 Qh3 Bf8 17 Be3 Bd6
18 f4 g4 19 Qg3 Ne7 20 Bd4 O-O-O 21 Qc3 Rhf8 22 Rac1 h4 23 Bc5 Qe6 24 Qc2 h3
25 Bxd6 Rxd6 26 Rxd6 cxd6 27 Nd4 Qd7 28 g3 f5 29 Rd1 fxe4 30 Qxe4 d5 31 Qe2 Ng8
32 Rc1 Re8 33 Qc2 Qe7 34 Nxc6 bxc6 35 Qxc6+ Kb8 36 Qb6+ Ka8 37 Qxa6+ Qa7+
38 Qxa7+ Kxa7 39 Kh1 Kb6 40 b4 Nf6 41 a4 Re4 42 Rb1 Re3 43 Ra1 Rb3
44 b5 Rb2 45 a5+ Kc5 46 b6 Rxb2 47 b7 Rb2 48 b8Q Rxb8 49 Kg1 Rb2 0-1

**BP - INNOVATION**

1 e4 c6 2 d4 d5 3 Nc3 dxe4 4 Nxe4 Nf6 5 Nxf6+ gxf6 6 c3 Bf5 7 Nf3 Nd7 8 g3 Qa5 9 Bc4 e6
10 Bf4 Bh3 11 Qe2 Nb6 12 Bc7 Ba3 13 Bxb6 axb6 14 Nh4 O-O-O 15 Rd1 Bd6 16 Rd3 h5
17 Re3 Rhe8 18 f4 Kb8 19 b4 Bxb4 20 cxb4 Qxb4+ 21 Kf2 Rxd4 22 Bd3 Bg4 23 Nf3 Red8
24 Rb1 Qa3 25 Rb3 Qe5 26 h3 Bxf3 27 Kxf3 Qd5+ 28 Kf2 h4 29 Rf3 Qxf3+ 30 Kxf3 1-0