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Ancient Game, Modern Masters

IBM Deep Blue, Kasparov to Engage in Historical Chess Match Crossing the Technology Threshold Into the 21st Century

New York, May 1, 1997. . . On May 3rd, the world's greatest chess player will once again match wits against IBM's Deep Blue*, the world's greatest chess playing computer. The IBM Kasparov/Deep Blue Rematch, May 3-11 at the Equitable Center in New York City, is a grand experiment in computer science as well as a world-class showdown of two formidable opponents.

IBM Deep Blue is a groundbreaking research experiment in massively parallel computing designed to learn how to maximize the power of a system and apply that power to problems currently too difficult to solve with computers. The game of chess is used because it is a complex problem but one with simple rules, ideally suited for this experiment. Future applications of this technology, to address equally complex computational problems such as pharmaceutical drug development, financial risk assessment and decision support, could mean faster, cheaper drug development, better management of financial assets and more accurate forecasting of consumer demands.

Kasparov and the IBM Deep Blue team come to this six-game rematch better prepared for the challenge and more aware of their uniquely different abilities than when they first met in February 1996. Kasparov, world champion for more than 12 consecutive years and whose mind is arguably the ultimate expression of strategy and intuition, has used the last 14 months to study the moves of Deep Blue and other computer programs to prepare his strategy. The Deep Blue computer system, an RS/6000* SP* supercomputer, is faster, more flexible and full of more chess knowledge.

The first game of the 1996 match was won by Deep Blue, creating a debate around the world regarding the meaning of the victory and its impact on how far humans can take technology. Kasparov ultimately went on to win the match 4-2, but the historical relevance of the meeting has since intrigued a broad spectrum of spectators worldwide -- young and old, men and women, technologists and neophytes, chess enthusiasts and even those who have never played the game. This year's match, with a \$1.1 million purse, \$700,000 of which goes to the winner, promises to again ignite a global discussion on the symbolic meaning of the match -- man and machine entering a new era of computing.

"In one respect, I think I am trying to save the dignity of mankind by playing in this match," said Kasparov. "In another respect, it is a team of research scientists who created this computer system and they are really my opponents. Let's see what they've come up with in terms of hardware and software to challenge the power of the human mind."

"Learning from last year's match, we were able to analyze the performance of the machine and improve it to more effectively react and play on par with one of the greatest strategic minds of this century," said Dr. C.J. Tan, IBM Deep Blue team leader.

"Deep Blue can now crunch through an even greater number of options and we have added much more specialized chess knowledge, so its analysis of moves is greatly enhanced. By creating Deep Blue, and finely tuning its capabilities, we are learning how to apply this computing paradigm to all kinds of problems to more quickly find solutions. No matter who wins the match, we all win."

The power behind IBM Deep Blue is an IBM RS/6000 SP parallel supercomputer. By joining special purpose hardware and software with general purpose parallel computing, the team developed a system with a brute force computing speed capable of examining 200 million moves per second -- or 50 billion positions -- in the three minutes allocated for a single move in a chess game. The RS/6000 SP is the same type of system used today in hundreds of commercial and scientific/technical applications, such as weather forecasting, airline scheduling and retail inventory management. It is also the system which hosts the IBM Deep Blue website.

The team of Deep Blue scientists at IBM's T.J. Watson Research Center in Yorktown Heights, N.Y., includes: Chung-Jen (C.J.) Tan, team senior manager; Feng Hsiung (F.H.) Hsu, research scientist; Murray Campbell, research scientist; Joseph Hoane, research scientist; Joel Benjamin, Chess Grand Master; and Jerry Brody, engineer.

The IBM Kasparov/Deep Blue match is taking place before a live audience at the Equitable Center in New York City. The event can also be watched via the Internet at www.chess.ibm.com.

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