

# The 12<sup>th</sup> World Computer Chess Championship

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The 12th World Computer Chess Championship<sup>1</sup> took place from July 4th to 12th in Bar-Ilan University, Ramat-Gan, Israel. The event was organized by Bar-Ilan University and International Computer Games Association (ICGA), and sponsored by the City of Ramat-Gan, Intel Israel, Israel Ministry of Tourism, Aladdin, Mercury, IBM Israel, Pitango, PowerDSine, and Golan Heights Winery.

The strongest chess programs took part in the championship. Amongst them Shredder, the 2003 World Computer Chess Champion, Junior, and Fritz. Unlike last year's championship in Graz, the top programs had a tough time against the amateurs. While in Graz the top four programs won almost every game against amateurs with rather ease, this time they lost many half points and even a number of full points against the amateurs, which resulted in a very interesting tournament. This clearly shows that the amateur programs have improved considerably since last year.

After 11 rounds, it was the Israeli program Junior that topped the list, leading half a point ahead of the German program Shredder, becoming the 12th World Computer Chess Champion. The Dutch program Diep finished in the third place, after a spectacular win against the other favorite, Fritz, in the 10th round. The speed-chess tournament was one by Shredder, followed by Crafty (from the US) in the second place, and two Israeli programs Falcon and Junior sharing the third place.

Even though computer-chess is the most researched field in artificial intelligence, these WCCC events each year demonstrate that improvements are always made, and there is still much room for progress. Many programs made tangible improvements since last year, searching more efficiently, and applying more refined evaluation. The opening book preparations were also of utmost importance. Many games were already decided in the opening phase, with preparations extending well into the middlegame.

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In addition to the algorithmic improvements and the incorporated chess knowledge, this tournament also proved the importance of hardware speed. The five programs that ran on four processor machines, ended up in top five places, frequently outsearching their opponents running on inferior machines. With multi-core processors emerging soon (IBM already released a multi-core processor, and Intel, AMD, and Sun have announced plans for release of multi-core processors in 2005), more programs are expected to run on parallel hardware in the near future. Thus, efficient parallelization of search algorithms would be of even greater importance.

While currently the strongest human chess players and the strongest chess programs are about equal in their strength (the last three man vs. machine matches of Kramnik vs. Fritz, Kasparov vs. Deep Junior, Kasparov vs. X3D Fritz ended in draws), this tournament illustrated yet again that it will become harder for humans to match up against machines in the near future. In many games the programs searched very deeply, and played brilliant tactical moves that are very hard for humans to find. While in long-term positional understanding humans are still superior to machines, the deeper the machines search, the more strategic patterns emerge in their moves. With the hardware improvements also on their side, it seems to be only a matter of time until chess programs completely dominate over even the strongest human chess players.