A summary of Deep Blue paper wrote by Murray Campbell, A. Joseph Hoane Jr. and Feng-hsiung Hsu

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Main Goal of the Paper

The paper describes some history about the creation of a computer specialized in playing chess called Deep Blue, as well the features of this computer that made it to be possible to beat the Chess World Champion Garry Kasparov 1997.

The Techniques Employed

The hardware:

The machine was an ultra-specialized beast, counting with 30 general purpose processors IBM RS/6000 SP and 480 single-chip chess search engines. This computer was capable of calculate from 100 to 300 million chess positions per second, depending of the situation.
Each chess chip was made specially to play chess, and had the heuristic calculation recorded in it, using a special feature, a set of 8000 patterns that, when found, help to evaluate the situation.

The software:

First, is import understand that the Deep Blue was a massive parallel computer.
Considering this, it's easy to wonder that one of the harder tasks of de Deep Blue developer's war coordinate the 30 CPUs and the 480 chess chips.
The search of the Deep Blue was divided in Software search and Hardware search, the software starts the process in the initials depth, using a complex recursive search, a very complex evaluation function and transposition table.
Then, in the deeper layers, the task was passed to the hardware, with applied the null-window alpha-beta search, don't using pruning.
The software also counts with an opening book with 4000 positions to start the game and an extended book with each position of 700,000, which should be cataloged in a way that attribute more value as the quality of the Grand Master that made the move.
And finally, an end-game database.

The Result

As most people know, the Deep Blue failed in the first attempt in 1996, and then, in 1997, with the configuration described above, it defeated Garry Kasparov with a score of 3.5-2.5.