Deep Blue had an ambitious goal of beating the worlds best chess player in 1997, Garry Kasparov. The paper goes on to describe the Hardware and the software that deepblue used and its previous iterations, deep thought 1 and two.

The paper starts off with describing the first chess machine, deep thought, that was built to play at the grandmaster level in the 1980's. Deep thought used a single chip to generate up to 700,000 moves per second. The paper then goes on to describe deep thought 2, which was developed in 1991-1995. The both 1 and 2 used the same move generator but the min difference that increased the speed was the parallelization used in deep thought 2.

Deep thought 2 had 24 chips to use and alot more RAM storage to be able to work with, which allows for more powerful computations. Another differnce between them was that deep thought 2 was the evaluation functions were reletivly simple, in turn this would alow more moves to be computed and evaluated.

The paper then goes on to talk about the hardward for Deep Blue one which had massive improvements implimented in the Hardware. There was a boost in performace to the single chip design and there were 216 chess chilp which increased the number of moves searched from the thousands to millions (deep blue1 searcing 1.6-2 million moves). The main difference between deepblue 1 and deep blue 2 was that the evaluation functions were reevaluated and improved and they added many more, going from 6400 to over 8000 evaluation functions.

The Paper then descusses many of Deep blues Search methods. Some of the things that Deep blue had to keep in mind was to swap tactics on the fly and generate moved based on current events. An example of this would be when black had a number of delaying moves, such as check mates or high value pieces being threatened, white needed a precise response. The algorithm that Deep blue used was also descussed with it useing Alpha beta prunning to get rid of many moves that would never be reached.

deep blue does a few things for the Evaluation Functions. The first being Static and Dynamic Values taht are initilized at the beginning of the search. Dynamic values they are scaled to suit the need of the board through a look up table. To help with beggining game moves; Deep blue has a opening book that was hand crafted by a few Grandmasters and has over 4000 possitions. Deep blue checked these possitions and put emphasis on openings that are strong.

Another Factor that affected Deep Blues play is the extended book, which is a database holding 700,000 games from Grandmasters. In useing this Data, Deep blue was able to use these playes to win in 1997.

To conclude the paper states that it wasnt just one factor, like the algorithm used or the evaluation functions but instead was the synergy of all its components that gave it the win. The paper states that there could have been many imporvement, such as the parallel search efficiency and the pruning mechanisms used. The paper also states that the evalutation functions could have also been improved on and were far from complete.