

CHAPTER VI

CONCLUSION

We propose the feasibility of genetic algorithm to the problem of high-level self-recovery micro-rollback synthesis constrained only on the number of functional units, functional unit areas, number of checkpoints and the number of control steps. A new encoding scheme, crossover and mutation operation are produced. We apply our genetic algorithm approach on the both well-known fifth order elliptic and discrete cosine transform benchmarks. Comparing our results with the previous ones, we find that our approach produces the better results in two aspects. Firstly, we can schedule the both benchmarks with less number of control steps in the circumstance of the same resources. Secondly, our technique provide the flexibility to include more constraints to the problem. However, our approach can be further developed as recommended below:

- The effect of variation of β and α of cost function should be investigated to improve the performance of genetic algorithm in two aspects; the number of generation and the search space.
- The practical method of estimating the size of functional unit, size of register could be tried to improve the cost function.
- The extension of this problem to cover more constraints such as interconnection cost --the number of multiplexers, and buses.
- Some initialization techniques which provide better solution in less number of generations should be examined.