Crosstalk minimization on VLSI circuits

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Abstract : Crosstalk appears in different electronics and electrical ckts. and chip design. The reason is long stretches of overlapping wires, which produce parasitic coupling between neighbouring signal lines. In VLSI design, crosstalk creates a lot of problems. Crosstalk minimization problem is NP complete. Different heuristics can be applied ,which find different permutations. Among these different permutations, target is to find the solution with minimum crosstalk. All these algorithms take exponential time to find it.

GA can generate valid coloration of a graph easily. The different coloring sequences of a graph gives diverse alternative for horizontal constraint graph of a VLSI channel. The fitness function can be designed to take care of crosstalk in the channel. The most effective near optimal solution, i.e., the coloration of HCG with minimal fitness, will give the routing solution with minimal crosstalk.

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