

CSE 460

Spring 2006 : Lockwood

Homework #4: Due Parts A & B: Thursday, March 9, 2006

Part C: Thursday March 23, 2006

at start of class (2:30pm)

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As described in Lecture 9, augment your Computer Aided Design tool to process Don't Care (DC) inputs and find a minimal cost set of Essential Prime Implicants that cover the ONSet of a function.

1. Part A : Modify your HW3 CAD tool so that it can accept expression for both the ON set (ONSet) and the Don't Care Set (DCSet).
 - Demonstrate to the TA the operation of your program while generating the set of Prime Implicants (PIs) of the combined set (ONSet + DCSet) for benchmark circuits
 - Submit the list of the generated PIs
 - Compute the area cost of the resulting function
 - Measure the user-time required to run your program on a PC in the lab (in Seconds):
2. Part B : Augment your program so that it outputs a minimal cost set of Prime Implicants that cover the function. If there is a unique solution, your program should find it by selecting the PIs that solely cover sole minterms then eliminating rows and columns that are dominated. If the solution is not unique, use a greedy algorithm to pick an implicant and move on.
 - Demonstrate to the TA the operation of your program while generating a minimal set of Prime Implicants (PIs) that cover the ONset
 - Submit the list of the generated PIs
 - Compute the area cost of the resulting function
 - Measure the user-time required to run your program on a PC in the lab (in Seconds):

3. Part C : Augment your program so that it outputs a set of minimum cost Essential Prime Implicants. Use the Branch and Bound technique to find the minimum cost function that covers the function.
- Demonstrate to the TA the operation of your program while generating a minimal set of Essential Prime Implicants (EPIs) that cover the ONset
 - Submit the list of the generated EPIs
 - Compute the area cost of the resulting function
 - Measure the user-time required to run your program on a PC in the lab (in Seconds):