

# Factors Analysis of Capacity Backup Policy for Twin Fabs

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## Abstract

In order to reduce some facility costs and increase production flexibility, twin-fab concept has been established over the past decade. Through the concept of twin-fab, the manufacturing capacity of two fabs, such as total throughput and utilization of machines, can be improved and enhanced effectively by different capacity backup policies. However, if lacking of completed backup control policies, the benefit of twin-fab will be decreased significantly. Therefore, it is necessary to find out the factors which will influence the performance of capacity backup policies. The purpose of this research is to observe and analyze the factors, which can affect the production performance in twin-fab capacity backup model. The simulation model is established and the experimental design is applied. The capacity backup environments were divided into two parts and named as permanent and temporary capacity shortage separately. Furthermore, three more factors were taken into account, which included WIP (Working In Process) level, the difference of WIP amount and stability of backup machine. By simulation, the analytical data is collected and analyzed its significance in these two environments. According to the results, they reveal that the significance of factors under different environments. Based on these results, the managers can conclude an appropriate shop floor control policy in twin-fab environment, which will help to reduce the cycle time of products and increase the total throughput of twin-fab.

Keyword : Twin-fab, Capacity backup policy, Simulation model, Experimental design