A Model to Control Capacity Backup for Twin Fabs of Wafer Fabrication

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Abstract

The twin-fab concept has been established over the past decade due to the college of increasing facility cost, more complex process and demand uncertainty for increasing competitive advantage. This study proposed an effective capacity backup control model for twin fabs under a real time environment. In this research, the two control thresholds were developed for capacity backup control model. The first one is the WIP (Working In Process) amount threshold (T) which is established under the concept of protective capacity. The purpose is to avoid the machine idle under excessive transfer behavior. In the other hand, in order to endorse the effectiveness of WIP transfer between twin-fab, the threshold of WIP amount difference (DT) is set as a control gate. The queuing theory is applied to develop the parameter for the threshold of WIP amount difference. Through these two control rules, the managers can obtain an appropriate policy in twin-fab environment, which will help to get a reliable information for decision making. Finally, the capacity backup can be well arranged among the twin fabs and be processed more efficiently and effectively.

Keyword：Twin-fab, Capacity backup policy, Protective capacity, Transportation time.