Performance Estimation Model of Twin Fabs under Capacity Backup

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Abstract

This study proposed an effective model for performance estimation of twin fabs under a real time capacity backup environment. The notion of twin-fab means two neighboring fabs are not only installed in the same building, but also connect to each other through AMHS (Automatic Material Handling System). In order to increase the whole performance, the capacity backup should be performed between twin fabs.
In this study, the performance estimation model is established under two situations, temporary and perma-nent capacity shortage. The queuing theory and Little's Law is applied in both two situations to develop the estimation model. Besides, in temporary capacity shortage, the performance estimation is based on the con-cept of capacity mergence of capacity backup workstation. In the other words, the twin fabs are taken as a single fab for the capacity backup machines to estimate the performance. Based on this model, managers can obtain an appropriate estimation of capacity backup performance in twin-fab environment, which will help to get a reliable information for decision making.

Keyword：Twin-fab; performance evaluation; capacity backup