

Capacity pricing mechanism for wafer fabrication
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Abstract

Wafer fabrication is perhaps the most capital-intensive and technology-intensive industry. Due to customer demand uncertainty, the wafer fabrication industry in Taiwan became dramatically competitive. Emergency orders demanded from customers may exist for the need of time-to-market. How to respond to emergency orders from customers, to analyze the impact to production and cost, and to design an appropriate order acceptance plan, have become an important task for enterprises in pursuing higher service quality and ultimate profit maximization. In this paper, we propose a capacity pricing mechanism to evaluate the impacts of emergency orders. The mechanism is constructed under the circumstances that master production scheduling (MPS), capacity requirement planning (CRP), and data for manufacturing costs are known. Through production planning and profit analysis, the mechanism can analyze pricing factors including the process plans of products, priority levels of products, urgency of orders, and number of layers of poly and metal, so as to reflect the length of cycle time, waiting-time savings, impact to cycle time variance of all orders, and usage amount of critical resources. The capacity price for each product type under each priority level can be determined as a result.

Keyword : Wafer fabrication; Production planning; Capacity pricing;
Emergency order; Order acceptance