

A Study of the Optimal Competitiveness Management Model for the
Semiconductor Manufacturing Supply Chain

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Abstract

In recent years, as the Integrated Device Manufacturers (IDM) outsource different manufacturing processes to IC OEMs, also since many IC design companies are set up, professional OEMs of Taiwan's semiconductor industry are developed rapidly, thus, a complete manufacturing supply chain is created. Therefore, semiconductor suppliers' (IDM or IC design company) effective selection and management of the chain according to market demand and OEM's performance are the key factors to maintain its high service quality, low-cost and high competitiveness. This study proposed concepts of the most competitive manufacturing supply chain and the most vital OEM, and designed the network model and algorithm to assess them, so as to assist the semiconductor suppliers to manage the chain effectively. The findings of this study not only could help improving and managing the chain competitiveness effectively, but the proposed model could also be integrated with the existing software of chain management, which could enhance decision-making functions of the software.

Keyword : Manufacturing supply chain network, Shortest path, Most vital link, Most competitive manufacturing supply chain, Most vital OEM