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Optimal Resource Configuration and Allocation Planning Problem for Bottleneck Machines and Auxiliary Tools

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Abstract : This study presents the case of an actual Taiwanese semiconductor assembly and testing manufacturer. Three major bottleneck manufacturing processes, namely, die bond, wire bond, and molding, are analyzed to determine how to use finite resources to achieve the optimal capacity allocation. A medium-term capacity allocation planning model is developed by considering the optimal total profit to satisfy the promised volume demanded by customers and to obtain the best migration decision among production lines for machines and tools. Finally, sensitivity analysis based on the actual case is provided to explore the effect of various parameter levels.

Keywords : capacity planning, capacity allocation, machine migration, resource configuration
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