Proceedings of the 2024 Winter Simulation Conference
H. Lam, E. Azar, D. Batur, S. Gao, W. Xie, S. R. Hunter, and M. D. Rossetti, eds.

INTEGRATION OF PRODUCTION AND MATERIAL HANDLING SIMULATIONS ON A UNIFIED DIGITAL TWINS PLATFORM

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ABSTRACT

Traditionally, production and material handling simulations in semiconductor manufacturing have been managed separately, leading to inefficiencies. Material handling simulations typically focus on finding the fastest routes between points A and B but often fail to account for potential delays at point B before the next production step begins, highlighting the limitations of standalone approaches. This session presents a case study demonstrating how integrating these two critical systems on a unified digital twin platform has led to significant manufacturing optimization. Production simulations generate equipment schedules without considering logistics, while material handling simulations model equipment locations and identify high-traffic areas. By validating production schedules with material handling simulations, potential issues are identified, allowing the production simulation to incorporate constraints and re-optimize schedules. You may learn how this integrated approach has streamlined processes, improved coordination, and enhanced overall efficiency in semiconductor manufacturing.