



## **Equipment Intelligence: Process Control in 3D**

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As advanced semiconductor technologies have become more complex, Equipment Intelligence has emerged as an important element of optimizing manufacturing operations, controlling variations and determining yield. In this work, we will examine several elements of Equipment Intelligence, with a specific focus on virtual processing, sensors and process control. The challenges of advanced logic and memory processes have driven many control mechanisms to the edge of measurement capabilities, requiring model-based measurement and real-time process control. Novel sensor technology combined with advanced equipment controls enable a new generation of process equipment that behave as intelligent nodes on the semiconductor manufacturing network.