

ABSTRACT OF THE DISCLOSURE

The present invention generally provides a system and method that deposits an electroless seed layer on a substrate prior to subsequent processing. The system is designed with flexible architecture and can be configured in several ways. The electroless deposition process is performed *in-situ* with an electroplating process to minimize oxidation and other contaminants prior to the electroplating process. The system allows the substrate to be transferred from the electroless deposition process to the electroplating process with a protective coating to also minimize oxidation. The system generally includes a mainframe having a mainframe substrate transfer robot, a loading station disposed in connection with the mainframe, one or more processing facilities disposed in connection with the mainframe, and an electroless supply fluidly connected to the one or more processing applicators. Preferably, the electro-chemical deposition system includes a spin-rinse-dry (SRD) station disposed between the loading station and the mainframe, a rapid thermal anneal chamber attached to the loading station, and a system controller for controlling the deposition processes and the components of the electro-chemical deposition system. The electroless deposition fills defects and discontinuities in the activation, or seed, layer and allows subsequent processing, such as electroplating, to fill the remainder of the features without substantial voids in the deposited material.

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