CONTROLLED AMBIENT SYSTEM FOR INTERFACE ENGINEERING

ABSTRACT OF THE DISCLOSURE

A cluster architecture and methods for processing a substrate are disclosed. The cluster architecture includes a lab-ambient controlled transfer module that is coupled to one or more wet substrate processing modules. The lab-ambient controlled transfer module and the one or more wet substrate processing modules are configured to manage a first ambient environment. A vacuum transfer module that is coupled to the lab-ambient controlled transfer module and one or more plasma processing modules is also provided. The vacuum transfer module and the one or more plasma processing modules are configured to manage a second ambient environment. And, a controlled ambient transfer module that is coupled to the vacuum transfer module and one or more ambient processing modules is also included. The controlled ambient transfer module and the one or more ambient processing modules are configured to manage a third ambient environment. The cluster architecture therefore enables controlled processing of the substrate in either the first, second or third ambient environments, as well as during associated transitions. The embodiments also provide for efficient methods for filling a trench of a substrate.

Figure 1