

What is claimed is:

1. A method of cleaning a substrate comprising:
rotating a substrate disposed on a substrate support;
spraying a front side of the substrate using steam through a front side nozzle assembly;
spraying a back side of the substrate using steam through a back side dispenser assembly; and
dispensing a heated chemical over the front side of the substrate.
2. The method of claim 1, wherein spraying the front side of the substrate comprises applying a top spray nozzle above the substrate support.
3. The method of claim 1, wherein dispensing the heated chemical over the front side of the substrate comprises mixing the heated chemical and a nitrogen gas in a chemical heating and dispensing nozzle (POU nozzle), wherein the POU nozzle is movable between a center of the substrate and an outer perimeter of the substrate.
4. The method of claim 3, wherein the POU nozzle comprises:
a first conduit coupled to a heat exchanger, wherein the heat exchanger is coupled to a steam source and a cleaning chemical source, wherein the heat exchanger releases the heated chemical source into the first conduit of the POU nozzle; and
a second conduit coupled to a nitrogen gas source.
5. The method of claim 1, wherein spraying the back side of the substrate comprises releasing steam through a center opening of a back plate disposed below the substrate.
6. The method of claim 1, further comprising:
rinsing the top side of the substrate using deionized water (DIW) through the front side nozzle assembly; and

rinsing the back side of the substrate using DIW through the back side dispenser assembly.

7. The method of claim 6, wherein rinsing the back side and the front side of the substrate comprises spraying the back side and the front side with steam and DIW.

8. The method of claim 1, wherein spraying the front side and the back side of the substrate comprises heating the substrate to a temperature of about 90°C and about 140°C.

9. The method of claim 1, wherein spraying the back side of the substrate comprises releasing steam through a plurality of perforations of a back plate.

10. The method of claim 1, further comprising applying megasonic energy to the substrate, wherein one or more vibrating transducer elements are disposed within a back plate.

11. The method of claim 1, wherein dispensing the heated chemical comprises dispensing about 20 mL to about 50 mL of chemicals to cover the front side of the substrate.

12. The method of claim 1, further comprising drying the substrate by dispensing isopropyl alcohol (IPA) and DIW at a substrate temperature of about 25°C to about 40°C.

13. The method of claim 1, further comprising:
applying a nitrogen blanket over the front side of the substrate; and
rinsing the front side of the substrate with carbon dioxide dissolved DIW.

14. An apparatus for cleaning a substrate comprising:
a chamber having a substrate support and a back plate disposed therein;
a point of use (POU) nozzle disposed above the substrate support, the POU nozzle comprising a first conduit configured to be coupled to a fluid source and a second conduit configured to be coupled to a nitrogen source;

a front side nozzle assembly disposed above the substrate support, the front side nozzle assembly configured to be coupled to a first steam source and a first deionized water (DIW) source; and

a back side dispenser assembly disposed below the substrate support, the back side dispenser assembly configured to be coupled to a second steam source and a second DIW source.

15. The apparatus of claim 14, wherein the back plate comprises a center opening, wherein the center opening is in fluid communication with an orifice of the back side dispenser assembly.

16. The apparatus of claim 14, wherein the back plate comprises a plurality of apertures, wherein each of the plurality of apertures are in fluid communication with an orifice of the back side dispenser assembly.

17. The apparatus of claim 14, wherein the substrate further comprises a back plate, wherein the back plate comprises one or more vibrating transducer elements.

18. The apparatus of claim 14, wherein the first conduit of the front side nozzle assembly is coupled to a heat exchanger, wherein the heat exchanger comprises steam configured to heat a cleaning fluid from the fluid source.

19. The apparatus of claim 14, wherein the POU nozzle is movable between a center of the back plate and an outer perimeter of the back plate.

20. A method of processing a substrate comprising:
polishing the substrate using a chemical mechanical planarization (CMP) process;
rotating the substrate disposed on a substrate support;
heating a front side of the substrate using steam through a front side nozzle assembly;
heating a back side of the substrate using steam through a back side dispenser assembly;
dispensing a heated chemical over the front side of the substrate;

rinsing the front side and the back side of the substrate using carbon dioxide dissolved DIW and steam; and

drying the substrate, wherein drying the substrate comprises flowing a nitrogen gas and drying fluid over the front side of the substrate.