CLAIMS

What is claimed is:

1. A semiconductor processing tool for implementing hybrid laser and plasma dicing of a substrate, comprising:

a transfer module, wherein the transfer module comprises a track robot for handling the substrate;

a first loadlock attached to the transfer module, wherein the first loadlock comprises a first linear transfer system for handling the substrate; ~~and~~

a processing chamber attached to the first loadlock, wherein the first linear transfer system of the first loadlock is configured to insert and remove the substrate from the processing chamber; and

a second loadlock attached to the transfer module, wherein the second loadlock comprises a second linear transfer system for handling the substrate.

2. The semiconductor processing tool of claim 1, wherein the track robot is configured to remove the substrate from a cassette and transfer the substrate to the first loadlock.

3. The semiconductor processing tool of claim 1, wherein the processing chamber is a plasma etching chamber.

4. The semiconductor processing tool of claim 3, further comprising:

a laser module attached to the transfer module, wherein the track robot is configured to transfer the substrate from the laser module to the first loadlock.

5. The semiconductor processing tool of claim 1, wherein the substrate is attached to a tape frame.

6. The semiconductor processing tool of claim 1, wherein the first linear transfer system is at least partially surrounded by a cover.

7. The semiconductor processing tool of claim 1, wherein the first loadlock is capable of supporting a vacuum pressure that is approximately 50 mTorr or lower.

8. The semiconductor processing tool of claim 1, further comprising:

~~a second loadlock attached to the transfer module; and~~

a second processing chamber attached to the second loadlock.

9. The semiconductor processing tool of claim 8, wherein the processing chamber and the second processing chamber are attached to the same side of the transfer module.

10. The semiconductor processing tool of claim 8, wherein the processing chamber and the second processing chamber are attached to different sides of the transfer module.

~~11. A loadlock in a processing tool for implementing hybrid laser and plasma dicing of a substrate, comprising:~~

~~an enclosure, wherein a first door is on a first side of the enclosure and a second door is on a second side of the enclosure that is opposite from the first side;~~

~~a linear actuator in the enclosure, wherein the linear actuator extends out the second door when extended; and~~

~~an end effector attached to the linear actuator.~~

~~12. The loadlock of claim 11, further comprising:~~

~~a housing around a portion of the linear actuator.~~

~~13. The loadlock of claim 11, wherein the end effector is configured to secure a tape frame.~~

~~14. The loadlock of claim 11, wherein the end effector is configured to secure a wafer.~~

~~15. The loadlock of claim 11, wherein the enclosure is capable of supporting a vacuum pressure of approximately 50 mTorr or less.~~

~~16~~11. A plasma laser dicing tool for dicing of a substrate, comprising:

a transfer module, wherein the transfer module comprises a track robot for handling the substrate;

a laser module attached to the transfer module, wherein the track robot is configured to insert and remove the substrate from the laser module;

a first loadlock attached to the transfer module, wherein the first loadlock comprises a first linear transfer system for handling the substrate;

a first processing chamber attached to the first loadlock, wherein the first linear transfer

system of the first loadlock is configured to insert and remove the substrate from the first processing chamber;

a second loadlock attached to the transfer module, wherein the second loadlock comprises a second linear transfer system for handling the substrate; and

a second processing chamber attached to the second loadlock, wherein the second linear transfer system of the second loadlock is configured to insert and remove the substrate from the second processing chamber.

~~17~~12. The plasma laser dicing tool of claim ~~16~~11, wherein the first processing chamber and the second processing chamber are plasma chambers.

~~18~~13. The plasma laser dicing tool of claim ~~16~~11, wherein the first processing chamber and the second processing chamber are adjacent to each other.

~~19~~14. The plasma laser dicing tool of claim ~~16~~11, wherein the first loadlock and the second loadlock each comprise:

an enclosure, wherein a first door is on a first side of the enclosure and interfaces with the transfer module, and a second door is on a second side of the enclosure that is opposite from the first side and interfaces with the first processing chamber or the second processing chamber;

a linear actuator in the enclosure, wherein the linear actuator extends out the second door when extended; and

an end effector attached to the linear actuator.

~~20~~15. The plasma laser dicing tool of claim ~~16~~11, wherein the track robot is configured to remove the substrate from a cassette and transfer the substrate to the loadlock.