WHAT IS CLAIMED IS:

1. A method of transporting a substrate, comprising:

suction-holding while cooling a substrate in a heated condition with a suction plate, the substrate being formed by molding two or more chips arranged planarly with a resin, wherein

in a process of transporting the substrate on two or more tables including a loading table and an unloading table with various set temperatures while suction-holding the substrate with the suction plate, a cooling temperature of the suction-plate is adjusted so as to fall between a set temperature of the loading table and that of the unloading table; and

in a process of transporting the substrate in the heated condition from the loading table while being suction-held with the suction plate, the substrate is cooled into a temperature at which the resin does not deform or run due to its own weight, and

the substrate reaching the temperature is received on the unloading table and then is cooled on the loading table into room temperatures.

~~2. The method of transporting the substrate according to claim 1, wherein~~

~~in a process of transporting the substrate on two or more tables including a loading table and an unloading table with various set temperatures while suction-holding the substrate with the suction plate, a cooling temperature of the suction plate is adjusted so as to fall between a set temperature of the loading table and that of the unloading table.~~

~~3. The method of transporting the substrate according to claim 1, wherein~~

~~in a process of transporting the substrate in a heated condition from the loading table while being suction-held with the suction plate, the substrate is cooled into a temperature at which the resin does not deform or run due to its own weight, and~~

~~the substrate reaching the temperature is received on the unloading table, and then is cooled on the loading table into room temperatures.~~

42. An apparatus for transporting a substrate, comprising:

a transport mechanism with a suction plate for suction-holding while cooling a substrate in a heated condition, the substrate being formed by molding two or more chips arranged planarly with a resin;

two or more tables including a loading table and an unloading table for suction-holding while cooling the substrate; and

a controller for adjusting temperatures of the suction plate and the tables such that a temperature of the substrate falls into a given temperature during transporting while suction-holding the substrate with the suction-plate onto each of the tables having various temperatures, and for performing control so as to cool the substrate to a temperature at which the resin does not deform or run due to its own weight, wherein upon the substrate reaching the temperature, the transport mechanism transports the substrate onto the unloading table and then onto the loading table to be cooled into room temperatures.

~~5~~3. The apparatus for transporting the substrate according to claim 42, further comprising:

a detector for detecting a temperature of the substrate, wherein

the controller adjusts timing of unloading and loading the substrate from and to each of the tables in accordance with detection data from the detector.

~~6~~4. The apparatus for transporting the substrate according to claim 42, further comprising:

a support plate having support claws for supporting the substrate at two or more portions on an outer periphery in a rear face of the substrate that is covered with the resin; and

a drive mechanism for moving the substrate on the support claws onto a placing surface of the table and an unloading position above the table by moving the support plate upward and downward.

~~7~~5. The apparatus for transporting the substrate according to claim 42, further comprising:

two or more support pins for supporting the substrate covered with the resin on a centre region in a rear face of the substrate.