WHAT IS CLAIMED IS:

1. A processing apparatus comprising:

a wafer cassette table on which a wafer cassette having multiple wafers housed therein is placed;

a wafer carrying-out unit that carries a wafer out from the wafer cassette placed on the wafer cassette table;

a wafer table that supports the wafer carried out by the wafer carrying-out unit;

a frame housing unit that houses multiple annular frames therein, each annular frame having an opening part for housing the wafer therein;

a frame carrying-out unit that carries the annular frame out from the frame housing unit;

a frame table that supports the annular frame carried out by the frame carrying-out unit;

a first tape pressure bonding unit that is disposed above the frame table and includes a first pressure bonding roller for executing pressure bonding of a tape to the annular frame;

a tape-attached frame conveying unit that conveys, to the wafer table, the annular frame to which the tape is pressure-bonded, and places the tape-attached annular frame on the wafer table in such a manner that a front

surface or a back surface of the wafer supported by the wafer table is positioned in the opening part of the annular frame;

a second tape pressure bonding unit that includes a second pressure bonding roller for executing pressure bonding of the tape of the tape-attached annular frame to the front surface or the back surface of the wafer;

frame unit carrying-out means that carries, out from the wafer table, a frame unit in which the tape of the tape-attached annular frame and the front surface or the back surface of the wafer are pressure-bonded together by the second tape pressure bonding unit; and

a frame cassette table on which a frame cassette that houses the frame unit therein is placed; and

a camera that images an exposed surface of the wafer on which the tape is pressure-bonded by the second tape pressure bonding unit,

wherein a first heating unit is disposed in one of or both the frame table and the first pressure bonding roller, while a second heating unit is disposed in one of or both the wafer table and the second pressure bonding roller;

wherein either an adhesive tape that has an adhesive layer laid on a sheet or a thermocompression

bonding tape that does not have an adhesive layer on a sheet is selectively used as the tape; and

wherein, when the exposed surface of the wafer supported by the wafer table is the front surface, the camera acquires an identification displayed on the front surface of the wafer.

2. The processing apparatus according to claim 1, wherein

a ring-shaped reinforcing part having a protrusion shape is formed in a region on the back surface corresponding to an outer circumferential surplus region of the wafer, and

the processing apparatus further comprises

a reinforcing part removing unit that cuts and removes the ring-shaped reinforcing part from the wafer of the frame unit carried out by the frame unit carrying-out means, and

ring-free unit carrying-out means that carries a ring-free unit resulting from the removal of the ring-shaped reinforcing part out from the reinforcing part removing unit.

3. The processing apparatus according to claim 1, wherein

the first tape pressure bonding unit includes

a roll tape support part that supports a roll tape where the tape that is yet to be used is wound,

a tape take-up part that takes up the tape that has been used,

a tape pull-out part that pulls out the tape from the roll tape,

the first pressure bonding roller that executes pressure bonding of the tape pulled out to the annular frame, and

a cutting part that cuts the tape protruding to an outer circumference of the annular frame along the annular frame.

4. The processing apparatus according to claim 3, wherein,

when the tape is a thermocompression bonding tape, the first heating unit is actuated to heat one of or both the frame table and the first pressure bonding roller and execute thermocompression bonding of the thermocompression bonding tape to the annular frame.

5. The processing apparatus according to claim 1, wherein

the second tape pressure bonding unit includes

an upper chamber disposed above the wafer table,

a lower chamber in which the wafer table is housed,

a raising-lowering mechanism that raises and lowers the upper chamber and generates a closed state in which the upper chamber is brought into contact with the lower chamber and an opened state in which the upper chamber is separated from the lower chamber,

a vacuum part that sets the upper chamber and the lower chamber to a vacuum state in the closed state, and

an opening-to-atmosphere part that opens the upper chamber and the lower chamber to atmosphere, and,

wherein in a state in which the tape of the tape-attached annular frame is positioned to the front surface or the back surface of the wafer supported by the wafer table, the upper chamber and the lower chamber are set to a vacuum state while the closed state is kept through actuating the raising-lowering mechanism, and pressure bonding of the tape of the tape-attached annular frame to the front surface or the back surface of the wafer is executed by the second pressure bonding roller disposed in the upper chamber.

6. The processing apparatus according to claim 5, wherein,

when the tape is a thermocompression bonding tape, the second heating unit is actuated to heat one of or both the wafer table and the second pressure bonding roller and execute thermocompression bonding of the thermocompression bonding tape to the front surface or the back surface of the wafer.

7. The processing apparatus according to claim 5, wherein

the camera is disposed in the upper chamber of the second tape pressure bonding unit, and whether an exposed surface of the wafer supported by the wafer table is the front surface or the back surface is detected before the tape-attached annular frame is conveyed.

8. The processing apparatus according to claim 1, wherein

the camera detects whether or not the tape is properly pressure-bonded to the wafer, after the pressure bonding of the tape of the tape-attached annular frame to the wafer supported by the wafer table is executed.