WHAT IS CLAIMED IS:

1. A wafer processing method for grinding or polishing a back surface of a wafer on which a device is formed in each of a plurality of regions on a front surface segmented by planned dividing lines, the wafer processing method comprising:

a frame unit forming step of positioning the wafer in an opening of a frame, the opening having a size that allows housing of the wafer, and executing thermocompression bonding of a thermocompression bonding sheet to the front surface of the wafer and the frame to form a frame unit without the use of an adhesive layer in which the wafer and the frame are directly contacted with the thermocompression bonding sheet and integrated through the thermocompression bonding sheet;

a holding step of holding the frame unit by a chuck table of a processing apparatus;

a processing step of grinding or polishing the back surface of the wafer by a processing unit of the processing apparatus; and

a cleaning step of unloading the frame unit from the chuck table and cleaning the wafer that has been processed.

2. The wafer processing method according to claim

1, wherein

in the frame unit forming step, the thermocompression bonding of the thermocompression bonding sheet to the wafer and the frame is executed in a state in which a planarization member that keeps flatness of the thermocompression bonding sheet is disposed between the wafer and the frame.

3. The wafer processing method according to claim 1 or claim 2, wherein

in the processing step, the back surface of the wafer is polished by a dry system with use of a polishing pad containing abrasive grains.

4. The wafer processing method according to any of claim 1 to claim 3, wherein

the thermocompression bonding sheet is a polyolefin-based sheet.

5. The wafer processing method according to claim 4, wherein

the polyolefin-based sheet is any of a polyethylene sheet, a polypropylene sheet, and a polystyrene sheet.

6. The wafer processing method according to claim 5, wherein

thermocompression bonding of the polyethylene sheet is executed at a temperature of 120°C to 140°C in the

frame unit forming step when the polyolefin-based sheet is the polyethylene sheet, thermocompression bonding of the polypropylene sheet is executed at a temperature of 160°C to 180°C in the frame unit forming step when the polyolefin-based sheet is the polypropylene sheet, and thermocompression bonding of the polystyrene sheet is executed at a temperature of 220°C to 240°C in the frame unit forming step when the polyolefin-based sheet is the polystyrene sheet.

7. The wafer processing method according to any of claim 1 to claim 3, wherein

the thermocompression bonding sheet is a polyester-based sheet.

8. The wafer processing method according to claim 7, wherein

the polyester-based sheet is a polyethylene terephthalate sheet or a polyethylene naphthalate sheet.

9. The wafer processing method according to claim 8, wherein

thermocompression bonding of the polyethylene terephthalate sheet is executed at a temperature of 250°C to 270°C in the frame unit forming step when the polyester-based sheet is the polyethylene terephthalate sheet, and thermocompression bonding of the polyethylene

naphthalate sheet is executed at a temperature of 160°C to 180°C in the frame unit forming step when the polyester-based sheet is the polyethylene naphthalate sheet.