

CLAIMS:

[Claim 1] A bonding apparatus comprising:

a first camera including a first optical system;

a bonding head part which is movable and holds the first camera oriented toward one side

5 and a bonding tool arranged apart from the first camera by an offset distance;

a second camera including a second optical system oriented toward another side to be capable of photographing the bonding head part;

a reference member which has a reference mark on a surface on the another side and is fixed at a position spaced apart from the second camera by a predetermined distance; and

10 a calculation part which calculates a change amount in the offset distance based on the predetermined distance, a position of the reference mark detected by the first camera, and a position of a chip detected by the second camera, when the bonding head part moves such that the reference mark is positioned within a field of view of the first camera and the chip held by the bonding tool is positioned within a field of view of the second camera, wherein

15 the calculation part detects the position of the reference mark based on a first image captured by the first camera, and detects the position of the chip based on a second image captured by the second camera.

[Claim 2] The bonding apparatus according to claim 1, wherein

20 the calculation part measures a deviation amount of the reference mark with respect to the first camera based on the first image, and measures a deviation amount of the chip with respect to the second camera based on the second image.

[Claim 3] The bonding apparatus according to claim 1 or 2, further comprising:

a movement control part which controls movement of the bonding head part and determines a movement amount of the bonding head part based on the calculated change amount
25 in the offset distance.

[Claim 4] The bonding apparatus according to any one of claims 1 to 3, wherein the second camera and the reference member are integrated.

[Claim 5] The bonding apparatus according to any one of claims 1 to 4, wherein the predetermined distance is set based on the offset distance.

5 [Claim 6] A bonding method, which is a bonding method of a bonding apparatus comprising:

a bonding head part which is movable and holds a first camera installed with an optical system oriented toward one side and a bonding tool arranged apart from the first camera by an offset distance;

10 a second camera installed with an optical system oriented toward another side to be capable of photographing the bonding head part; and

a reference member which has a reference mark on a surface on the another side and is fixed at a position spaced apart from the second camera by a predetermined distance,

the bonding method comprising:

15 detecting, by the first camera, a position of the reference mark, and detecting, by the second camera, a position of a chip held by the bonding tool; and

calculating a change amount in the offset distance based on the predetermined distance, the detected position of the reference mark, and the detected position of the chip, wherein

20 the calculating comprises detecting the position of the reference mark based on a first image captured by the first camera, and detecting the position of the chip based on a second image captured by the second camera.