

CLAIMS

1. A mounting apparatus comprising:
a mounting stage;
a reference chip and a correction chip that are placed on the mounting stage;
an upper/lower dual-view camera configured to take an upper image and a lower image at the same time; and
a control unit configured to move positions of the reference chip and the correction chip, and to process the images taken by the upper/lower dual-view camera.

2. The mounting apparatus according to claim 1, wherein the control unit is configured to perform:
a first chip-movement step of picking up the correction chip, moving the correction chip in an X direction and a Y direction by a predetermined offset amount, and positioning the correction chip immediately above the reference chip;

a first image-obtaining step of moving the upper/lower dual-view camera between the correction chip and the reference chip, and having the upper/lower dual-view camera take an image of an upper surface of the reference chip and an image of a lower surface of the correction chip at the same time;

a first chip-position calculation step of processing the images taken in the first image-obtaining step, and calculating a position of the reference chip in the XY direction and a position of the correction chip in the XY direction;

a second chip-movement step of calculating a displacement amount between the reference chip and the correction chip in the XY direction based on the position of the reference chip in the XY direction and the position of the correction chip in the XY direction, moving the reference chip to a position in the XY direction, based on the calculated displacement amount, at which a distance between the reference chip and the correction chip in the XY direction corresponds to the predetermined offset amount, and then placing the correction chip on the mounting stage;

a second image-obtaining step of moving the upper/lower dual-view camera above the correction chip, and having the upper/lower dual-view camera take an image of an upper surface of the correction chip placed on the mounting stage;

a second chip-position calculation step of processing the image taken in the second image-obtaining step, and calculating a second position of the correction chip in the XY direction; and

a correction amount calculation step of calculating a correction amount of the predetermined offset amount based on the position of the reference chip in the XY direction that has been calculated in the first chip-position calculation step, and on the second position of the correction chip in the XY direction that has been calculated in the second chip-position calculation step.

3. A method of correcting offset amount of a mounting apparatus, the method comprising:

a step of preparing a mounting apparatus including: a mounting stage; a reference chip and a correction chip that are placed on the mounting stage; an upper/lower dual-view camera configured to take an upper image and a lower image at the same time; and a control unit configured to move positions of the reference chip and the correction chip, and to process the images taken by the upper/lower dual-view camera;

a first chip-movement step of picking up the correction chip, moving the correction chip in an X direction and a Y direction by a predetermined offset amount, and positioning the correction chip immediately above the reference chip;

a first image-obtaining step of moving the upper/lower dual-view camera between the correction chip and the reference chip, and having the upper/lower dual-view camera take an image

of an upper surface of the reference chip and an image of a lower surface of the correction chip at the same time;

a first chip-position calculation step of processing the images taken in the first image-obtaining step, and calculating a position of the reference chip in the XY direction and a position of the correction chip in the XY direction;

a second chip-movement step of calculating a displacement amount between the reference chip and the correction chip in the XY direction based on the position of the reference chip in the XY direction and the position of the correction chip in the XY direction, moving the reference chip to a position in the XY direction, based on the calculated displacement amount, at which a distance between the reference chip and the correction chip in the XY direction corresponds to the predetermined offset amount, and then placing the correction chip on the mounting stage;

a second image-obtaining step of moving the upper/lower dual-view camera above the correction chip, and having the upper/lower dual-view camera take an image of an upper surface of the correction chip placed on the mounting stage;

a second chip-position calculation step of processing the image taken in the second image-obtaining step, and calculating a second position of the correction chip in the XY direction;
and

a correction amount calculation step of calculating a correction amount of the predetermined offset amount based on the position of the reference chip in the XY direction that has been calculated in the first chip-position calculation step, and on the second position of the correction chip in the XY direction that has been calculated in the second chip-position calculation step.

CLAIMS

1. A mounting apparatus comprising:
 - a mounting stage;
 - a reference chip and a correction chip that are placed on the mounting stage;
 - an upper/lower dual-view camera configured to take an upper image and a lower image at the same time; and
 - a control unit configured to move positions of the reference chip and the correction chip, and to process the images taken by the upper/lower dual-view camera, wherein the control unit is configured to perform:
 - a first image-obtaining step of moving the upper/lower dual-view camera between the reference chip and the correction chip that has moved in an X direction and a Y direction by a predetermined offset amount, and obtaining an image of an upper surface of the reference chip and an image of a lower surface of the correction chip by the upper/lower dual-view camera at the same time;
 - a second image-obtaining step of placing the correction chip on a position in the XY directions on the mounting stage, at which a distance between a center of the reference chip and a center of the correction chip in the XY directions corresponds to the predetermined offset amount, and obtaining an image of an upper surface of the correction chip placed on the mounting stage by the upper/lower dual-view camera; and
 - a correction amount calculation step of calculating a correction amount of the predetermined offset amount based on the first image obtained by the first image-obtaining step and on the second image obtained by the second image-obtaining step.

2. A mounting apparatus comprising:
a mounting stage;
a reference chip and a correction chip that are placed on the mounting stage;
an upper/lower dual-view camera configured to take an upper image and a lower image at the same time; and
a control unit configured to move positions of the reference chip and the correction chip, and to process the images taken by the upper/lower dual-view camera, wherein the control unit is configured to perform:
a first chip-movement step of picking up the correction chip, moving the correction chip in an X direction and a Y direction by a predetermined offset amount, and positioning the correction chip immediately above the reference chip;
a first image-obtaining step of moving the upper/lower dual-view camera between the correction chip and the reference chip, and having the upper/lower dual-view camera take an image of an upper surface of the reference chip and an image of a lower surface of the correction chip at the same time;
a first chip-position calculation step of processing the images taken in the first image-obtaining step, and calculating a position of the reference chip in the XY direction and a position of the correction chip in the XY direction;
a second chip-movement step of calculating a displacement amount between the reference chip and the correction chip in the XY direction based on the position of the reference chip in the XY direction and the position of the correction chip in the XY direction, moving the reference chip to a position in the XY direction, based on the calculated displacement amount, at which a distance between the reference chip and the correction chip in the XY direction corresponds to the predetermined offset amount, and then placing the correction chip on the mounting stage;

a second image-obtaining step of moving the upper/lower dual-view camera above the correction chip, and having the upper/lower dual-view camera take an image of an upper surface of the correction chip placed on the mounting stage;

a second chip-position calculation step of processing the image taken in the second image-obtaining step, and calculating a second position of the correction chip in the XY direction; and

a correction amount calculation step of calculating a correction amount of the predetermined offset amount based on the position of the reference chip in the XY direction that has been calculated in the first chip-position calculation step, and on the second position of the correction chip in the XY direction that has been calculated in the second chip-position calculation step.

3. A method of correcting offset amount of a mounting apparatus, the method comprising:

a step of preparing a mounting apparatus including: a mounting stage; a reference chip and a correction chip that are placed on the mounting stage; an upper/lower dual-view camera configured to take an upper image and a lower image at the same time; and a control unit configured to move positions of the reference chip and the correction chip, and to process the images taken by the upper/lower dual-view camera;

a first chip-movement step of picking up the correction chip, moving the correction chip in an X direction and a Y direction by a predetermined offset amount, and positioning the correction chip immediately above the reference chip;

a first image-obtaining step of moving the upper/lower dual-view camera between the correction chip and the reference chip, and having the upper/lower dual-view camera take an image of an upper surface of the reference chip and an image of a lower surface of the correction chip at the same time;

a first chip-position calculation step of processing the images taken in the first image-obtaining step, and calculating a position of the reference chip in the XY direction and a position of the correction chip in the XY direction;

a second chip-movement step of calculating a displacement amount between the reference chip and the correction chip in the XY direction based on the position of the reference chip in the XY direction and the position of the correction chip in the XY direction, moving the reference chip to a position in the XY direction, based on the calculated displacement amount, at which a distance between the reference chip and the correction chip in the XY direction corresponds to the predetermined offset amount, and then placing the correction chip on the mounting stage;

a second image-obtaining step of moving the upper/lower dual-view camera above the correction chip, and having the upper/lower dual-view camera take an image of an upper surface of the correction chip placed on the mounting stage;

a second chip-position calculation step of processing the image taken in the second image-obtaining step, and calculating a second position of the correction chip in the XY direction; and

a correction amount calculation step of calculating a correction amount of the predetermined offset amount based on the position of the reference chip in the XY direction that has been calculated in the first chip-position calculation step, and on the second position of the correction chip in the XY direction that has been calculated in the second chip-position calculation step.