CLAIMS

1. An image processing apparatus characterized by comprising:

obtaining means for obtaining a plurality of viewpoint images having parallax in a predetermined direction;

operating means for accepting a viewpoint changing operation

processing means for generating, based on the plurality of viewpoint images, a display image by changing a viewpoint in accordance with the viewpoint changing operation; and

display control means for displaying the display image and a notation indicating a viewpoint changing direction in accordance with the viewpoint changing operation on a display device

wherein, in a case where the display image whose viewpoint can be changed in the predetermined direction is rotated and displayed at different angle, the display control means changes the notation in accordance with a direction in which viewpoint can be changed on the display image that is rotated and displayed at the different angle.

2. The image processing apparatus according to claim 1, characterized in that the operating means further accepts a focus position changing operation, and

the display control means displays the display image whose focus position is changed in accordance with the focus position changing operation on the display device.

3. The image processing apparatus according to claim 2, characterized in that in a case where the display image can be generated by changing the viewpoint in a predetermined direction based on the plurality of viewpoint images, the operating means accepts the viewpoint changing operation along the predetermined direction.

4. The image processing apparatus according to claim 3, characterized in

that in a case where the display image can be generated by changing the viewpoint in a predetermined direction based on the plurality of viewpoint images, the operating means accepts the focus position changing operation along a direction different from the predetermined direction.

5. The image processing apparatus according to claim 3 or 4, characterized in that the operating means accepts the viewpoint changing operation, such that the change in viewpoint in the predetermined direction increases as a position moves away from a predetermined position in the predetermined direction, and the change in viewpoint increases in a direction opposite to the predetermined direction as a position moves away to an opposite side from the predetermined position along the predetermined direction.

6. The image processing apparatus according to any one of claims 3 to 5, characterized in that a predetermined direction is a horizontal direction or a vertical direction.

7. The image processing apparatus according to claim 6, characterized in that in a case where displaying, in a vertical position, the display image whose viewpoint can be changed in a horizontal direction in a horizontal position, the operating means accepts the viewpoint changing operation in a vertical direction.

8. The image processing apparatus according to claim 7, characterized in that the display control means changes the notation in accordance with a direction in which the operating means accepts the viewpoint changing operation.

9. The image processing apparatus according to any one of claims 2 to 8, characterized in that the operation means accepts the focus position changing operation, such that the change in focus position increases as the focus position changing operation moves away from a predetermined position in an operation accepting direction.

10. The image processing apparatus according to any one of claims 2 to 9,

characterized in that the operating means accepts the viewpoint changing operation and the focus position changing operation in a state in which a display image based on the plurality of viewpoint images is displayed.

11. The image processing apparatus according to any one of claims 2 to 10, characterized in that the processing means generates the display image by changing a shift amount between the plurality of viewpoint images in accordance with the focus position changing operation, and adding the plurality of parallax images shifted by the shift amount.

12. The image processing apparatus according to any one of claims 1 to 11, characterized in that

the operating means further accepts an operation of changing a degree of edge enhancement in the display image, and

the processing means performs edge enhancement on a focused region in the display image in accordance with the degree of edge enhancement.

13. The image processing apparatus according to any one of claims 1 to 12, characterized in that the processing means generates the display image by changing a weight for adding the plurality of viewpoint images in accordance with the viewpoint changing operation, and adding the plurality of viewpoint images by using the weight.

14. An imaging apparatus characterized by comprising:

an image sensor in which pixels each including a plurality of subpixels are two-dimensionally arranged, and which outputs a plurality of viewpoint images having parallax in a predetermined direction;

operating means for accepting a viewpoint changing operation

processing means for generating, based on the plurality of viewpoint images, a display image by changing a viewpoint in accordance with the viewpoint changing operation; and

display control means for displaying the display image and a notation indicating a viewpoint changing direction in accordance with the viewpoint changing operation on a display device,

wherein in the image sensor, the plurality of subpixels are arranged in a predetermined direction in the pixel, and

in a case where the display image whose viewpoint can be changed in the predetermined direction is rotated and displayed at different angle, the display control means changes the notation in accordance with a direction in which viewpoint can be changed on the display image that is rotated and displayed at the different angle.

15. The imaging apparatus according to claim 14, characterized in that in a case where the display image in a horizontal position is displayed based on the plurality of viewpoint images captured in the horizontal position by using the imaging apparatus, the operating means accepts the viewpoint changing operation along the predetermined direction, and in a case where the display image in a vertical position is displayed as based on the plurality of viewpoint images captured in the horizontal direction, the operating means accepts the viewpoint changing operation along a direction perpendicular to the predetermined direction.

16. The imaging apparatus according to claim 15, characterized in that the display means changes the notation in accordance with a rotational angle from a vertical position or a horizontal position in which the plurality of viewpoint images are captured.

17. A control method of an image processing apparatus, characterized by comprising:

an obtaining step of causing obtaining means to obtain a plurality of viewpoint images having parallax in a predetermined direction;

an operating step of causing operating means to accept a viewpoint

changing operation;

a processing step of causing processing means to generate, based on the plurality of viewpoint images, a display image by changing a viewpoint in accordance with the viewpoint changing operation,; and

a display controlling step of causing display control means to display the display image and a notation indicating a viewpoint changing direction in accordance with the viewpoint changing operation on a display device,

wherein, in a case where the display image whose viewpoint can be changed in the predetermined direction is rotated and displayed at different angle, in the display controlling step, the notation is changed in accordance with a direction in which viewpoint can be changed on the display image that is rotated and displayed at the different angle.

18. A control method of an imaging apparatus comprising an image sensor in which pixels each including a plurality of subpixels are two-dimensionally arranged, and which outputs a plurality of viewpoint images having parallax in a predetermined direction, characterized by comprising:

an obtaining step of causing obtaining means to obtain the plurality of viewpoint images output from the image sensor;

an operating step of causing operating means to accept a viewpoint changing operation;

a processing step of causing processing means to generate, based on plurality of viewpoint images, a display image by changing a viewpoint in accordance with the viewpoint changing operation; and

display controlling step of causing display control means to display the display image and a notation indicating a viewpoint changing direction in accordance with the viewpoint changing operation on a display device,

wherein in the image sensor, the plurality of subpixels are arranged in a

predetermined direction in the pixel, and

in a case where the display image whose viewpoint can be changed in the predetermined direction is rotated and displayed at different angle, in the display controlling step, the notation is changed in accordance with a direction in which viewpoint can be changed on the display image that is rotated and displayed at the different angle.

19. A program for causing a computer to execute each step of a control method of an image processing apparatus according to claim 17.