ture, etc. resulting in a planar, two-dimensional image for each view. This process may be performed for each frame and for each view. Alternatively, because the planar three-dimensional image data of a virtual three-dimensional image describes the object of the image in three dimensions, the planar three-dimensional image data itself may be used without flattening to display the various views. Each view, whether flattened or unflattened, may be projected onto the corresponding surface of the three-dimensional display screen **1500**.

[0120] Non-planar displays, such as the three-dimensional display screen **1500**, may cause brightness and image distortions when displaying a planar image, in addition to lateral secondary color aberrations from ultra-wide lenses in the projection lens assembly **1400**. However, an image may be projected onto a non-planar, three-dimensional display screen **1500** with little or no distortion using a correction technique described further below. For example, the image data for each planar, three-dimensional image may be sent as two-dimensional image data. In the case of multiple views, each view may be sent as two-dimensional data for the corresponding view. The correction technique may be used to correct for any distortions from displaying a planar, two-dimensional image on a non-planar, three dimensional display screen **1500**. The data describing the image in three-dimensions may be used by the correction technique to adjust the planar image for distortions when projected onto the surface of the three-dimensional display screen **1500**. In the case of planar three-dimensional image data, whether "flattened" or "unflattened" as described above, the correction technique may be used to correct for optical aberrations (e.g., distortions), but may not be needed to correct for other distortion effects. For three-dimensional images designed specifically for the three-dimensional display screen **1500**, most of the corrections may be incorporated into the three-dimensional image data itself, though the correction technique may still be used to correct for some distortion effects, such as brightness distortion and color aberrations.

Correction Technique

[0121] **FIG. 21** is a block diagram of an exemplary depiction of a three-dimensional image controller **107** referred to above in connection with **FIG. 16**. Referring to **FIG. 21**, the three-dimensional image controller **107** may be an interface board operatively coupled to the micro-display engine **1200** via the I/O circuit **108**. Alternatively, the three-dimensional image controller **107** may be provided separately from the controller **100** with a video output of the controller **100**, which may be an output from the I/O circuit **108**, providing the two-dimensional video input to the three-dimensional controller **107**.

[0122] The three-dimensional image controller **107** may provide an image and signal conversion to receive a two-dimensional video input **1310**, which may be a digital or analog video input, and modify the two-dimensional video input **1310** to be displayable as a three-dimensional video image. The two-dimensional video input **1310** may be any two-dimensional video source of the type normally used for standard planar, two-dimensional screen monitors including cathode ray tube monitors, projection television monitors, flat screen monitors, etc. The two-dimensional video input **1310** may be designed to provide a projected light gain towards the front of a standard planar, two-dimensional screen monitor to maximize brightness for a person positioned directly in front of the monitor (i.e., small viewing angle). The three-dimensional image controller **107** may provide signal conversion, translation and correction to correct for diminished brightness that may occur when a two-dimensional video signal **1310** is projected onto portions of a non-planar, three-dimensional display screen **1500**. For example, when viewing a video image at an angle, the brightness may be diminished. This may often occur with projection display systems. For a non-planar, three-dimensional display screen **1500**, portions of the display (e.g., the right side) may be at an angle to the player causing diminished brightness as compared to other portions (e.g., the front) of the display. In other words, curved or angled surfaces may increase the viewing angle the images displayed on those surfaces and the player viewing the images. The three-dimensional image controller **107** may also correct for image distortion that may occur when a two-dimensional video signal **1310** is projected onto the three-dimensional display screen **1500**. For example, geometric image distortion may occur when projecting a square pixel onto a curved surface. The square pixel may be viewed as a rectangle or irregular polygon on such a curved surface. Variations in brightness may also occur with the distorted pixel because brightness is maximized in a two-dimensional video signal **1310** for small viewing angles. Likewise, the three-dimensional image controller **107** may correct for lateral secondary color aberrations that may occur due to an ultra-wide angle lens. In the case of a three-dimensional image data described above, the three-dimensional controller **107** may only need to correct for distortions from lateral secondary color aberrations and brightness distortions.

[0123] The three-dimensional image controller **107** may include a digital video interface (DVI) **1320**, an imaging processor **1330** operatively coupled to the digital video interface **1320**, an image buffer **1340** operatively coupled to the digital video interface **1320** and the imaging processor **1330**, a correction memory **1350** operatively coupled to the imaging processor **1330**, and a micro-display drive control **1360** operatively coupled to the imaging processor **1330** and the image buffer **1340**. While RGB analog video signals may be used as a two-dimensional input video signal in conjunction with an analog-to-digital converter, the two-dimensional input video signal **1310** may be a digital signal. Alternatively, three-dimensional image data designed for the three-dimensional screen **1500**, and planar three-dimensional image data (e.g., virtual three-dimensional image data) may be used as the input video signal. Though the following description will primarily discuss the three-dimensional image controller **107** and its functions with respect to a two-dimensional image input video signal **1310**, those of ordinary skill in the art will recognize how the three-dimensional image controller **107** may be applied to a three-dimensional input video signal (e.g., correction for color aberrations).

[0124] The digital video interface **1320** connection may be used to receive the digital two-dimensional input video signal **1310** and avoid having to use an analog-to-digital converter. The digital video interface **1320** may include a transition minimized differential signaling (TMDS) receiver at the front end to convert RGB data and clock serial streams from the two-dimensional input video signal **1310** into 24-bit parallel video data **1322** and into control data and frame clock (timing) signals **1324**. The digital video inter-