face **1320** may convert the input video signal **1310** into other video data **1322** formats, including 32-bit parallel video data **1322**, depending on the resolution of the video image. The video data **1322** may be sent to the image buffer **1340**, whereas the control data and frame clock signals **1324** may be sent to the imaging processor **1330**.

[**0125**] The imaging processor **1330** may receive the control data and frame clock signals **1324** to maintain the location of each pixel data (i.e., maintain the display address of each pixel). For example, two-dimensional input video data **1310** may have a video resolution of 800×600 pixels with a vertical video retrace rate of 85 Hz (85 frames per second) giving a total of 480,000 pixels per frame and 40.8 million pixels per second. However, the horizontal frequency may be anywhere within the range of 15-92 Hz and the vertical frequency may be within the range of 50-96 Hz. Other video resolutions are also possible, as mentioned above, and may depend on the size of the three-dimensional display screen **1500**. A large video image may use a higher degree of resolution to provide a more detailed image such that each pixel of the image may be less pronounced than with lower resolution images on the same three-dimensional display screen **1500**. Vertical and horizontal retrace signals may control the position of the top horizontal line of the image (i.e., line **1**) and the position of the first displayable pixel (i.e., pixel **1**) of each line within a given frame. A pixel control clock may maintain the count of the displayed pixels. The imaging processor **1330**, however, may assign a pixel image to any designated position or address on the three-dimensional display screen **1500**, even though the two-dimensional input video data **1310** may display a video pixel stream sequentially from left to right and top to bottom for each frame. While this may be relatively simple for displaying a video image through a micro-display engine **1200** having identical resolutions, for differences in resolution (e.g., 800×600 video image on a 1280×1024 pixel screen) the address maintenance may become more pronounced.

[**0126**] The imaging processor **1330** may also control the received pixel data to be stored in the image buffer **1340**. The 24-bit video data **1322** may be sent directly from the digital video interface **1320** to the image buffer **1340**, and the imaging processor **1330** may provide multiplexing timing for this process by way of timing and control signals **1324**, and addressing and control signals **1331**. For example, each piece of pixel data in the 24-bit video data **1322** may be associated with three bytes of data to provide 24-bits of color, which equates to 1.44 MB to be stored for a single image frame. The image buffer **1340** may therefore be a 24-bit wide, 1.44 M memory, though the width and size of the image buffer **1340** may vary depending on the characteristics of the video data **1322** and overall resolution. In one example, the image buffer may be 32-bits wide and 16 MB large to allow for 32-bit video data **1322**. The image buffer **1330** may further be a constant rotating and sequential buffer, such that for every frame of video data **1322**, pixel data may be refreshed with new pixel data for each subsequent frame.

[**0127**] The imaging processor **1330** may correct the displayable pixel by retrieving correction data from the correction memory **1350** using timing signals **1332**. The correction memory **1350** may be non-volatile memory such as flash memory, such that the correction memory **1350** may only be changed or updated if the three-dimensional image is changed. As mentioned above, a two-dimensional video image displayed on a three-dimensional display screen **1500** may include some distortions with some of the pixel images. The correction memory **1350** may therefore store correction codes **1334** to correct for the distortion effects. In one example, the correction memory **1350** may contain a 32-bit correction code **1334** for each 4×4 pixel block stored in the image buffer **1340**. An example of a 4×4 pixel block may be the first 4 pixels on horizontal line **1**, the first 4 pixels on line **2**, the first 4 pixels on line **3** and the first 4 pixels on line **4**. For the first 4 horizontal lines of a 800×600 resolution image there may be a total of 200 correction codes **1334**, with a total of 30,000 pixel blocks, and hence **30,000** codes **1334**, for the 480,000 pixels of a 800×600 resolution image. The correction codes may comprise a 200×150 matrix to match the array of 4×4 pixels in a 800×600 image. The size of the pixel blocks and/or the number of codes **1334** may vary depending on the image resolution, different three-dimensional display screen **1500** resolutions, the size of the three-dimensional display screen **1500**, etc.

[**0128**] Each correction code may contain offset and correction values, a brightness value (degree of cell reflectivity) and correction data related to a ray analysis. The offset and correction values and brightness values may be developed from the original three-dimensional data used to design the three-dimensional display screen **1500**. This may help avoid duplicative scanning processes and further help to maintain accuracy in correcting the input video signal for display on the three-dimensional display screen **1500**, though a scan of the three-dimensional display screen **1500** may also provide this data. By using information about the three-dimensional display screen **1500**, the effects on the image may be predicted (e.g., predict image distortion and brightness changes) and correction codes may be developed accordingly. The offset and correction values may generally relate to the position and shape/size of a pixel image. For example, an offset value may be used to avoid projecting a pixel image of an ear where a pixel image of a cheek should be displayed. The correction value may be used to increase or decrease the size of the pixel image, or even elongate or shorten an aspect of the pixel image. As an example, a pixel image of a left ear generally looks smaller from the front than from the left (i.e., a person sees more of the left ear when viewing from the left). Using a two-dimensional input video signal **1310** of a frontal view of a face with a micro-display engine **1200** for displaying only the left side of the face would require elongation of the pixel images associated with the left side of the frontal view, while shortening or eliminating those pixel images associated with the front or right side of the frontal view.

[**0129**] The corrected brightness data may be control data that varies the degree of reflectivity of each cell. As explained above, each cell may vary its degree of reflectivity through control voltages. Based on the surface curvatures of the three-dimensional display screen **1500**, the imaging processor **1330** may provide an appropriate increase or decrease in the brightness control signal to provide a higher or lesser degree of brightness to compensate for variations in the viewing angle. For example, for those pixels that may be displayed on the side of a nose, the viewing angle may be increased for a person facing the three-dimensional display screen **1500**. Therefore, predetermined control data may increase the degree of brightness for all pixel images to be projected on that portion of the three-dimensional display