(e.g., **415**). As such, in one embodiment, the luminance channel Q may be calculated according to the equation

$$Q=0.25*R+0.5*G+0.25*B,$$

where "R" represents the red channel of the graphical data (e.g., **415**), "G" represents the green channel of the graphical data (e.g., **415**), and "B" represents the blue channel of the graphical data (e.g., **415**). Additionally, the two chrominance channels T and D may be calculated according to the following equations:

$$T=R-G,$$

$$D=0.5*R+0.5*G-B.$$

[0038] As shown in FIG. **3**, step **340** involves processing the graphical data (e.g., **415**) in accordance with the graphical alteration information (e.g., accessed in step **320**) to generate updated graphical data (e.g., **425**). The processing may be performed by a graphical data processing component (e.g., **420**). Additionally, the updated graphical data (e.g., **425**) may compensate for distortion or alteration of displayed graphical objects (e.g., **150**) by components (e.g., **130**, **140**, etc.) of an MCD (e.g., **110**) as represented by the graphical alteration information (e.g., **422**). And in one embodiment, step **340** may be performed in accordance with process **500** of FIG. **5**.

[0039] The processing of step **340** may be performed on a select number of channels of the graphical data (e.g., **415**). For example, where the graphical data (e.g., **415**) is transformed into a luminance-chrominance space (e.g., as discussed with respect to step **330** above), the luminance channel (e.g., the Q channel of a QTD luminance-chrominance space) may be processed alone in one embodiment. As such, processing efficiency may be increased by processing a single channel instead of multiple channels (e.g., if the graphical data were not transformed in step **330** and processing was performed on multiple color channels of the RGB color space). Processing efficiency may be further increased by decreasing the resolution (e.g., the bit-depth) of the luminance channel before processing in step **340**. And in other embodiments, additional channels (e.g., the T channel, the D channel, etc.) may be processed for enhanced image distortion/alteration control, where the resolution of the additional channels may also be reduced for enhanced processing efficiency. Alternatively, the graphical data (e.g., **415**) may be processed without transforming into a new space (e.g., thereby skipping step **330**).

[0040] Step **350** involves transforming the updated graphical data (e.g., **425**) from the second space (e.g., that transformed into in step **330**) to the first space (e.g., the original space of graphical data **415** before any transformations in step **330**). In one embodiment, a transformation of the updated graphical data (e.g., **425**) from a QTD luminance-chrominance space to a RGB color space may be performed in accordance with the following exemplary computer code:

```
Y=inv([¼ ½ ¼; 1-10; ½ ½-1]);

R=Y(1,1)*tImage(:,:,1)+Y(2,1)*tImage(:,:,2)+Y(3,1)
*tImage(:,:,3);

G=Y(1,2)*tImage(:,:,1)+Y(2,2)*tImage(:,:,2)+Y(3,2)
*tImage(:,:,3);

B=Y(1,3)*tImage(:,:,1)+Y(2,3)*tImage(:,:,2)+Y(3,3)
*tImage(:,:,3),
```

where Y may represent the inverse of the matrix (e.g., the X matrix) used for the RGB-to-QTD transformation in step **330**, "tImage(:,:,1)" may represent the luminance channel Q of the updated graphical data (e.g., **425**), "tImage(:,:,2)" may represent the first chrominance channel T of the updated graphical data (e.g., **425**), and "tImage(:,:,3)" may represent the second chrominance channel D of the updated graphical data (e.g., **425**).

[0041] As shown in FIG. **3**, step **360** involves outputting (e.g., from component **420**) the updated graphical data (e.g., **425**) to an MCD for generating visual output. As shown in FIG. **4**, MCD **110** may access the updated graphical data **425** and generate visual output **440** therefrom. As such, visual output **440** may correspond to path **230** of FIG. **2**. Additionally, visual output **440** may be the result of displaying compensated graphical objects (e.g., **150**) which are subsequently altered or distorted upon passing through components (e.g., **130**, **140**, etc.) of MCD **110**. Thus, the image distortion/alteration of visual output **440** (e.g., caused by components of MCD **110**) may be reduced to improve the display quality of MCD **110**.

[0042] Alternatively, the updated graphical data (e.g., **425**) may be output (e.g., from component **420**) for subsequent storage and/or processing. In one embodiment, the updated graphical data (e.g., **425**) may be returned to graphical data source **410** (e.g., for processing and/or storage) as indicated by arrow **432** in FIG. **4**. Thereafter, the updated graphical data may be output to MCD **110** for subsequent display (e.g., in accordance with step **360**) as indicated by arrow **434** in FIG. **4**.

[0043] FIG. **5** shows exemplary computer-implemented process **500** for processing graphical data (e.g., **415**) in accordance with graphical alteration information (e.g., **422**) to generate updated graphical data (e.g., **425**) in accordance with one embodiment of the present invention. The processing of process **500** may effectively sharpen graphical objects (e.g., **150**) prior to display on an MCD (e.g., **110**) in one embodiment, thereby compensating for blurring caused by passing the graphical objects (e.g., **150**) through components (e.g., **130**, **140**, etc.) of the MCD (e.g., **110**) to effectively improve display quality of the MCD (e.g., **110**). In one embodiment, process **500** may be applied to sub-portions of the graphical data (e.g., row-by-row of pixels, multiple rows of pixels at a time, etc.). Alternatively, process **500** may be applied to larger portions of the graphical data (e.g., frame-by-frame, etc.).

[0044] As shown in FIG. **5**, step **510** involves applying a low-pass filter to graphical data (e.g., **415**, transformed graphical data produced by step **330** of process **300** of FIG. **3**, etc.) to generate low-pass graphical data. The low-pass filter may attenuate or filter out substantially all of the high-frequency components of the graphical data and leave substantially all of the low-frequency components (e.g., comprising the low-pass graphical data). A variable cutoff frequency may be used to define the high frequencies to be filtered and the low frequencies to be left alone, where the cutoff frequency may be predetermined (e.g., stored in a memory, input by a user, etc.) or dynamically varied (e.g., in response to an image distortion/alteration measurement of an MCD).

[0045] In one embodiment, the graphical data may be low-pass filtered using the following exemplary computer code:

```
filter=fspecial('gaussian', filter_size, sigma);

transQ=conv(Q, filter);
```