Candera Engine 2D

Dirty Area Management

Renderer2D::RenderCamera now accepts a rectangle as the parameter that defines a dirty area. A dirty area denotes an area on the screen or render target in which the content has changed, thus only this area requires updating by the Renderer. The dirty area rectangle parameter defaults to the full size of the screen or render target. If the user provides his own dirty area rectangle, only this area will be cleared and drawn to. Objects whose bounding rectangle is outside the dirty area will be skipped. Generally speaking, the smaller the dirty area, the smaller the bandwidth required for clearing and drawing, and the more objects can be skipped.

This feature also adds the properties Renderer2D::Statistics::BlitsCulled and Renderer2D::Statistics::AverageDirtyAreaFactor. BlitsCulled denotes the number of objects that could be skipped by the Renderer due to their bounding rectangle being outside the dirty area. AverageDirtyAreaFactor denotes the average dirty area divided by the size of the screen or render target. E.g. a factor of 0.8 means that the average dirty area accumulated since the last Renderer2D::Statistics::Reset is 80% of the size of the screen or render target. The bigger the factor, the less performance improvement can be expected. Under some circumstances, which depends on the actual content being used, performance can even decrease. Therefore always profile this feature to see if your content benefits from it or not.

Renderer2D::Statistics

Renderer2D::Statistics provides information on how many blits and clears were submitted to the RenderDevice2D in the process of executing Renderer2D::RenderCamera or Renderer2D::RenderAllCameras. Furthermore the statistics keep track of how many blits could be culled by the Renderer2D, as well as the ratio of the average dirty area to its screen/render target area.

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