# Proposed Immersive Display


October 2011

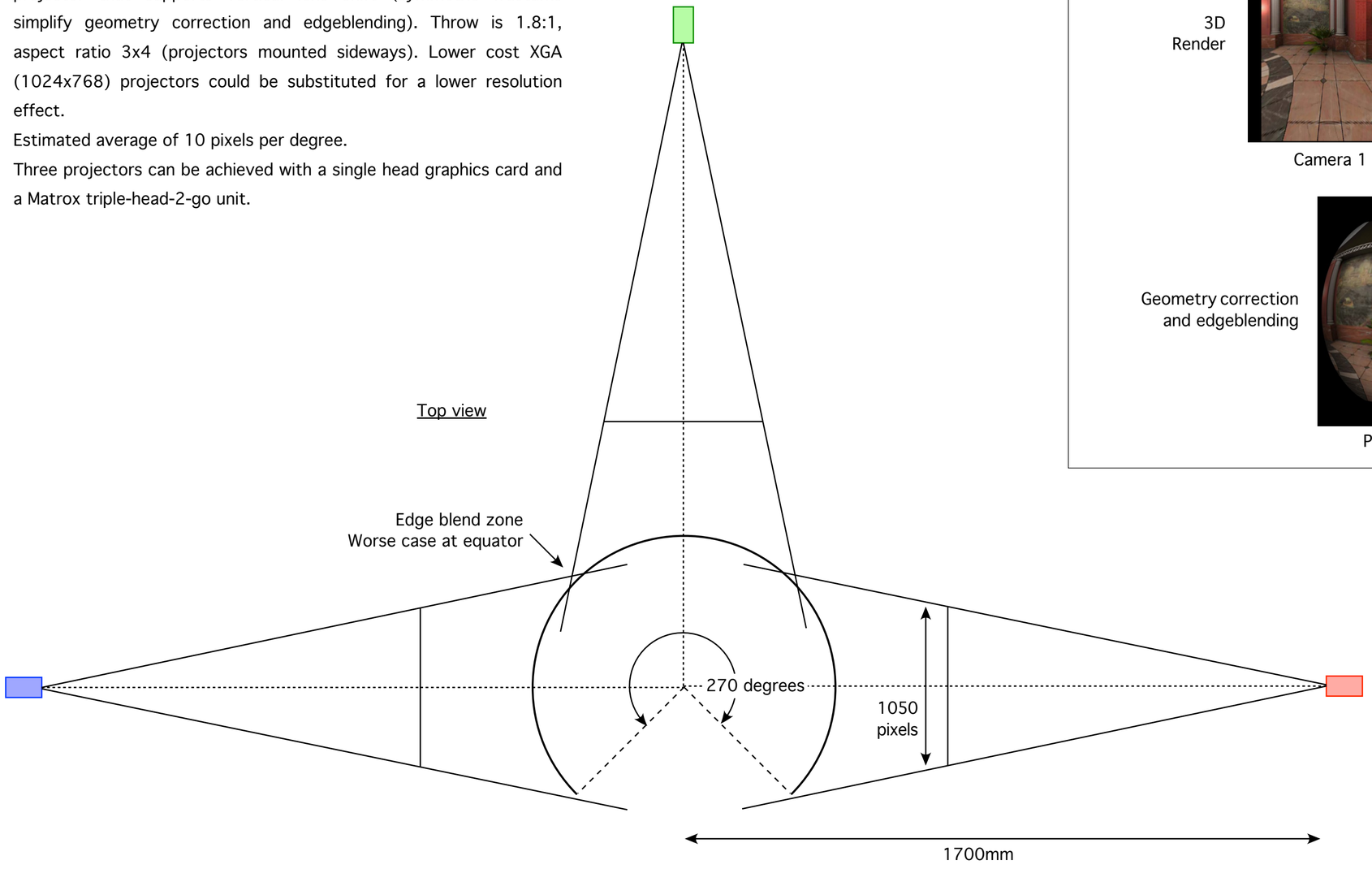
A three projector solution is proposed as a tradeoff between the final resolution on the dome and the overall system complexity.

Following based upon the InFocus IN5108, an SXGA+ (1400x1050) projector that supports vertical lens shift (symmetric frustums simplify geometry correction and edgeblending). Throw is 1.8:1, aspect ratio 3x4 (projectors mounted sideways). Lower cost XGA (1024x768) projectors could be substituted for a lower resolution effect.

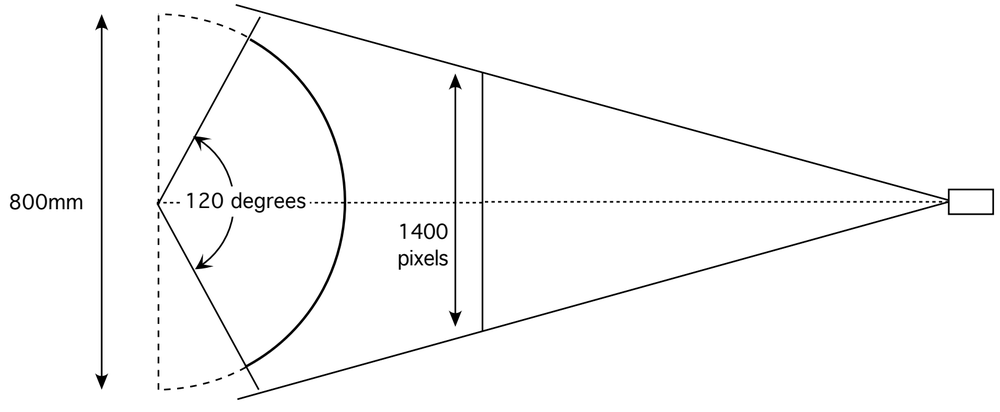
Estimated average of 10 pixels per degree.

Three projectors can be achieved with a single head graphics card and a Matrox triple-head-2-go unit.

Top view

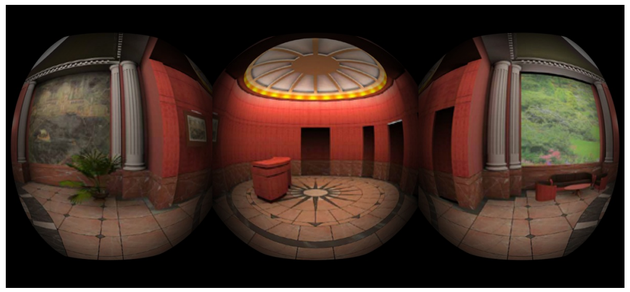



Side view

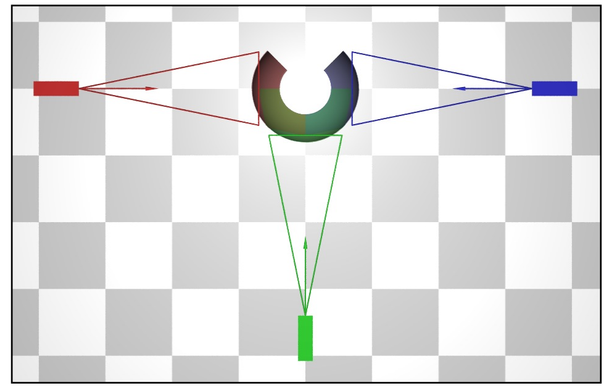



Improved coverage at the north pole can be achieved by raising the projectors above the midline and compensating by either using the horizontal lens shift and/or rotating the projectors downwards. This is at the expense of less coverage at the south pole.

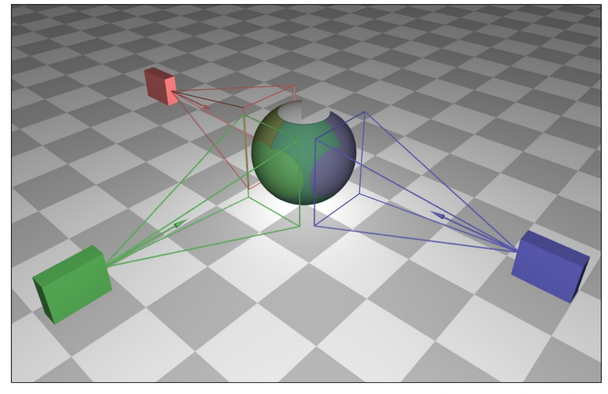
Content generation (for example Unity3D) is achieved by the rendering to texture of three prespective views (100x120 degree FOV). These three textures are then each applied to a mesh (one for each projector) that implements the geometry correction and edgeblending. This is a total of 3 x scene renders, 3 x texture passes.


Simulation



Top, orthographic view



Perspective view