The Vision Engine

Currently, the Vision Engine, used for both Wing Commander: Prophecy and Privateer 3, is a next generation 3D rendering engine. The engine is resolution independent, rendering to 8-, 16-, and 32-bit color buffers, and takes full advantage of Microsoft's DirectDraw and Direct3D accelerators.

Our engine allows the engine to render using any 3D accelerator hardware that supports the Direct3D programming interface. The big advantage is that the engine immediately supports future 3D accelerators with no work on our part.

The native mode for 3D accelerators allows us to concentrate on each piece of hardware. Although providing native support for individual accelerator cards requires additional programming time, it results in much faster frames since the engine can significantly reduce its update rate.

3D Engine

Because Privateer 3 will be accelerator required, the game will run smoothly on all target machines. The new engine accomplishes this with a new software rasterizer. This software rasterizer can render around 5.7 million perspective correct, textured, perspective correct, Gouraud shaded, 16 bit color pixels per second on a 166 MHz Pentium machine. In other words, if the game is running at a 640 x 480 resolution...
Audio
Music playback for PRIVATEER 3 will be implemented with streamed digital audio. The music will be digitized as 16 bit, 22050 Hz, stereo. The file system will allow the loading of data files, sound effects, as well as streamed in-flight communications video without causing a jarring skip in the music playback. All essential sound effects (missile launches, gun firings, etc.) will be loaded at the start of the mission and will remain in memory until the mission has completed using our caching techniques. All other sound effects will be loaded on demand. Those on-demand sound effects will be kept in a cache in order to reduce redundant loading. Sound effects will be sampled at the lowest rate that provides a high enough quality sound.

Video
Video playback will be provided by U2, the movie player that was used in Prophecy. U2 provides high quality video, even in high motion situations, at a reasonable data rate. Additionally, for speed critical applications, U2 is able to play back partially decompressed video at a faster rate with an acceptable loss in visual quality. By using U2, we should be able to fit around 50 minutes of full motion video on two CDs (in addition to all other game data and the executable) at a smooth 15 frames per second rate.

Music Streaming
We want to have digital music streaming from the CD at all times. During music playback, we also want to be able to load files. Since a 8x speed CD-ROM drive is required for Privateer 3, it is very likely we should have trouble loading small files while streaming music while still maintaining AI updates.

Artificial Intelligence
We originally attempted to update each object just once per second but this was far too expensive. It was determined that we can save a great deal of time by staggering the objects’ updates across each second. The AI scheduler determines each object’s update rate as well as the length of time that updates each world update. Privateer will accomplish this by caching object updates. Each object is inserted into the AI scheduler and assigned an update rate that is based on the current frame rate.

Network Technology
Origin On-Line:
PRIVATEER 3 plans on setting up its network model with its main goal being ease of use by the public. This model will allow players inside a central Internet location known as ORIGIN ON-LINE to locate PRIVATEER 3 servers throughout the world and quickly jump into a game, much the same way as Battle.Net and Quakeworld operate. ORIGIN ON-LINE would also allow a central repository by which updates and patches between main servers are distributed.

Central Database:
The core of the model will be a central database server that will contain a list of all current active servers. When a player establishes a network game, the master server will receive notification and add the new server to its list. At this point, the master server will begin to track the server and check for connection status. When a player wishes to find out what games are currently active, the master server will contact the origin of the last server to get the list of servers and update the database.

The PRIVATEER 3 master server model should allow us to offer the public a wide range of fun and practical network options, including ease of use, security, and ease of use.
From its origins in 1994, the Loose Cannon team has been dedicated to the timely delivery of all of its projects that it has undertaken. Delivering Crusader: No Remorse in 1995, and the sequel Crusader: No Regret in 1996, (including the No Remorse version for the PSX.) Loose Cannon has remained one of the highest rate-of-return teams at Origin.

Under the leadership of Rod Nakamoto, Loose Cannon hopes to further expand its role both within Origin and within EA. Acquiring the Privateer title in 1997, Loose Cannon is fiercely dedicated to the on-time, on-budget delivery of the third...