



ART VPS Provides Complete Solution For Bombardier Aerospace

INDUSTRY

Industrial Design and Manufacturing

THE CLIENT

Bombardier Aerospace Inc, Canada

THE PROBLEM

Bombardier's completions department needed to create top-quality visualization of aircraft interiors for their demanding clientele.

THE SOLUTION

Using ART VPS rendering solutions to create virtual photographs gives the best quality results and provides the speed to deliver a fast turnaround to help the clients decision process.

THE TOOLS

Dassault Systemes CATIA

Autodesk AutoCAD, 3dsmax

RenderDrive

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Eric Long

**Visualization Manager,
Bombardier Aerospace.**

Part of Canadian-based Bombardier Corporation, Bombardier Aerospace manufactures aircraft for military, general and business flying. At the Completions Centers in Montreal and Tucson, dedicated teams work on the bespoke end of the business, crafting individual aircraft interiors for corporate and private clients.

Personal service is the key in this sector of the aviation market and, with interiors costing serious money, clients come to Bombardier expecting the best. According to Bombardier's Eric Long and Jean-Sebastian Turcotte, investment in the latest design and visualization tools is one way that the company delivers a satisfying experience to its demanding client base. "We have a whole department stocked with fabrics, veneers and finishes for clients to choose from," says Long, "and it's our job to put together top-quality 3D visualizations of the aircraft interior to help the client with the selection process."



The need to provide the ultimate in visualization at every stage in the completion process led the Montreal and Tucson teams to each install ART VPS RenderDrive systems. "We'd been using another platform and were looking for better results. The CAD and manufacturing departments use AutoCad and our office is NT-based, so it made sense for us to look at 3D Studio Max, if we could get the rendering sorted."

Specializing in interiors for one of Bombardier's own business jet airframes, Long imports the plane's AutoCad data generated by the engineering departments, and creates the basic interior layout in Max according to the client's requirements. At this stage, there is considerable creative leeway on the interior decor, as long as the constraints of aeronautical engineering are not forgotten. Designing a custom interior is a carefully structured process



that takes into account many factors such as total interior weight, based on the range requirements. The longer the range, the more weight must be saved from the interior. This can have implications for those intent on the marble bathroom!

Once the floorplan layout has been decided on, initial visualizations are produced and the design team works with the client on the many choices for the interior. Hardware including avionics options, custom made cabinet furnishings and entertainment systems, is specified,



before the interior is clothed with leathers, fabrics, carpets and veneers. Sample boards and illustrations of selections are prepared to help the client choose, while Long and his colleagues work up a series of visualizations featuring the choice of materials.

"We'll sometimes produce a number of variations before the client is happy with the decor choices. We can render these changes with

RenderDrive and upload them to the client's office within a very short space of time. Buyers of private aircraft are usually pretty busy people, so getting a quick turnaround on the visualizations is a very important part of a successful experience for the client -and for us!"

RenderDrive includes materials libraries that help Bombardier reproduce the decor accurately. "It's really important to be able to provide a visualization that gives a highly realistic impression of the finished interior, because the client is using it to make decisions about a very expensive design. The outstanding quality of RenderDrive images help the client really 'see' the materials in place, and have the confidence to know in advance if the interior's going to work, or if maybe a particular surface is not appropriate. You can't get that sort of decision-making ability from the average 3D visualization."



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RenderDrive renders with a painstaking concern for the physical factors that determine how the surfaces and materials look in the real world. A mirror, for example, has many qualities other than reflectivity: surface coating, lacquers, surface texture and volume color of the glass all contribute to the character of an individual mirror. The RenderDrive materials library even includes unique shaders to allow effects like a variable index of refraction across the surface of a piece of glass. For some types of industrial visualization, absolute accuracy is crucial, and with data supplied from the glass manufacturer, it's possible for the RenderDrive user to produce a highly realistic simulation by dialling in the physical attributes of the glass into the RenderDrive material.



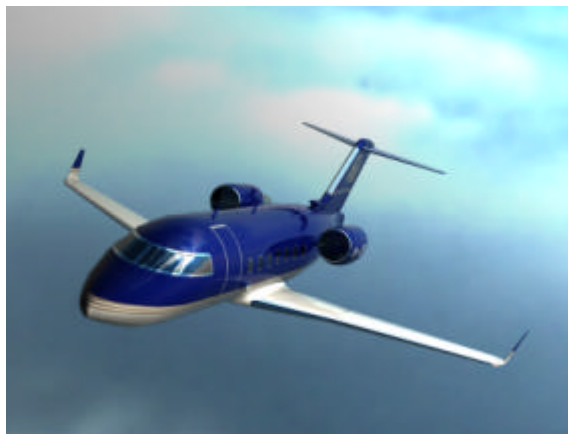
ART VPS LTD.

UK Tel: +44 1223 424 466

Japan Tel: + 81 1464 33 603

Web: www.artvps.com

For the team at Bombardier, RenderDrive's ability to produce accurate lighting with the minimum of fuss is another big advantage. In many rendering environments where light sources are not calculated in a physically accurate way, it can be a counter-intuitive and time consuming task to light a scene. "We just put the light sources where they will be in the aircraft's interior, and switch them on", says Long. "The renderer produces a natural,



accurate look, which gives the client a realistic representation, and means we don't have to spend a lot of time tweaking and adding extra light sources to get a good result.

With all the design work done and dusted, the craftsmen and technicians get to work with installing and testing the avionics, fitting bulkheads and soundproofing, installing the wiring, water systems and electronic components. The cabinetry and furniture are pre-fitted

to check for accuracy, before the finishing touches are applied. With everything finally in place, the aircraft is powered up and sent down the runway for its rigorous testing program, before final delivery to the customer.

By this time, though, Eric Long the rest of the team are well into their next projects. For them, lift-off occurs at the moment when they deliver a perfect visualization of an aircraft yet to be built.

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ABOUT ART VPS

ART VPS Ltd. develops and markets leading edge Virtual Photography solutions for users in the AEC, Industrial Design, and computer graphics markets. Virtual Photography allows computers to create images of uncompromising realism from digital data. Generating images in this way can significantly reduce the time-to-market for new products, architectural designs and entertainment projects. The company developed the world's first dedicated ray tracing graphics processors — the only 3D graphics chips that can create images of true realism. RenderDrive, ART VPS' s 3D rendering appliance, and PURE, ART' s 3D rendering workstation add-in board, are application independent and can be used with many 3D applications including 3ds max, 3D Studio VIZ, Maya, and any RenderMan-compatible application.

ART VPS customers include: Paul Steelman Design, Skidmore Owings & Merrill, and Taylor Woodrow plc for architectural visualization; The 3DO Company, Naxos Images, and Rushes for film, video, and interactive production; and Bombardier Aerospace, Procter & Gamble, and Shell for design visualization.
