



并行虚拟现实开发平台 Parallel Virtual Reality Development Platform (PVRDP)



PVRDP is a general software package used for the development of different kind of Virtual Reality application system. PVRDP can also be used for relative simple interactive scene visualization.

PVRDP provides a standard framework for application system development; it means the user only need to add application related code for constructing a VR application system. The platform can provide many functions to support each application development, these functions as parallel rendering, image edge merge, preprocessing of geometric models, rapid collision detection, virtual hand model and its driven logic and so on. This platform is the extended version of earlier platform named VR-Flier.

The main feature of this platform is parallel rendering based on PC cluster, a host computer is used for controlling all the rendering nodes and images output nodes, and it also has the function of network communication, image processing, geometrical model processing. It can not only use in parallel mode, but also non-parallel mode.

At present time, many application systems have been developed based on PVRDP, such as Distributed Parallel Virtual Assembly Environment (DPVAE), simulation system for an electric power plant, simulation for a digitized port system, manufacturing process simulation for a ship crankshaft and so on.

PVRDP软件包是为支持各类虚拟现实应用系统开发的通用虚拟现实开发软件平台，其本身也具备简单的交互视景仿真功能。

PVRDP为应用系统开发提供了一个标准框架，用户只需要编写与具体应用有关的代码，而并行渲染、图像边缘融合、几何模型预处理、实时碰撞检测、虚拟手模型及驱动等等均可由平台提供。它是早期开发平台VR-Flier的发展，除了包含VR-Flier的所有功能外，添加了并行程序开发支持和多种开发支持工具。

PVRDP的主要特色在于具备基于PC机群的并行渲染功能，可以一台终端机上实现对所有渲染支持结点的控制，还具有网络通信、图像处理、几何模型处理等辅助功能，他们不单用于支持并行渲染，还可以独立使用。

PVRDP用于支持各类虚拟现实应用系统的开发，目前已经支持了协同虚拟装配系统DPVAE，电厂建设仿真系统、数字化码头仿真、曲轴制造过程仿真等多个

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