



Ecosystem Update

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Outline

- **Documentation Updates**
- **Conformance Test Suite status**
- **Spec issues – undefined behavior, restructuring**
- **Related projects of interest (not Khronos-sponsored)**
 - **OpenGL 4.2 Sample Pack**
 - ***OpenGL Insights* call for authors**

Documentation Updates

- **Man pages updated for GL 4.2 / GLSL 4.20**
- **Posted under**
<http://www.opengl.org/sdk/docs/>
- **Thanks to Graham Sellers, again!**

Conformance Test Suite status

- **Khronos approved project funding in December 2010**
- **Based on OpenGL ES 2.0 conformance suite**
- **Substantial progress towards OpenGL 3.3 + selected later feature coverage (>50% implemented), first version to be completed in November**
- **Future OpenGL ES versions will also use this CTS, since they will implement more desktop functionality**
- **Should lead to more consistency in error reporting, fewer implementation divergences**
- **Working on new process for Adopters, like other Khronos APIs**

Undefined Behavior

- **OpenGL spec currently has about 80 areas where behavior is “undefined” or “implementation-specific”.**
- **Would like to reduce these as much as possible**
- **Partly motivated by WebGL, which does a great deal of wrapper work in part to be more consistent across the different GL and ES drivers WebGL uses**
- **Some areas unlikely to be tightened up**
 - **Performance-sensitive (e.g. validating indices on fast drawing paths)**
 - **Environment interactions (calling gl* when no context bound)**
 - **Compatibility profile (don't much care about hardwired lighting and shading at this point)**

Undefined Behavior

- **Some areas easily improved**
 - **Error behavior (where tested by conformance suite)**
 - **Differences arising from old low-precision hardware**
- **Remainder are being discussed one by one, making gradual progress**
- **We're also putting work into OpenGL / OpenGL ES Convergence to reduce differences between the two APIs**
- **OpenGL will never be a pixel-precise spec, but undefined behaviors will be reduced over time**

Spec Restructuring

- **GL API spec has accumulated new functionality**
 - **14 versions over 20 years**
- **Written by many authors in slightly different styles**
- **Still follows structure of fixed-function hardware pipeline**
- **Understanding features often requires a lot of non-local knowledge (generic parameter validation errors in ch. 2, queries in ch. 6, API elsewhere, some classes of errors related to e.g. buffer objects apply elsewhere but described with those objects only)**
- **Want to make the spec easier to write, read, extend, maintain**

Spec Restructuring

- **Starting post-SIGGRAPH**
 - **Reorganize around GL shaders, objects, and core profile**
 - **Upfront description of dataflow, object interactions, execution model, window system interactions, multiple contexts**
 - **Reduce inconsistencies by refactoring duplicate language arising from e.g. multiple shader stages**
 - **Describe general concepts & behaviors first, then specific objects or APIs they affect**
 - **Reduce the amount of non-local knowledge required to understand how a feature works (ex: list all possible errors for each command with that command)**
 - ***No* functional changes**

OpenGL 4.2 Sample Pack

- Updated for 4.2 and hosted in the OpenGL SDK at <http://www.opengl.org/sdk/docs/tutorials/OGLSamples/>
- Provides coverage of all new features, though not necessarily at a deep level
- Project is owned by Christophe Riccio

***OpenGL Insights* Call For Authors**

- **Compilation of contributed articles written by the OpenGL community**
- **Focus on experience of programmers with GL (also OpenGL ES, WebGL)**
 - **Rendering methods, performance tuning, platform specifics, debugging techniques, specific feature usage**
- **Edited by Patrick Cozzi and Christophe Riccio, to be released at SIGGRAPH 2012**
- **Call for authors open until August 25th . More information at <http://blog.openglinsights.com/> or by email to editors@openglinsights.com**