
xna
Gamefest
MICROSOFT GAME TECHNOLOGY CONFERENCE 2008
NVIDIA.
Microsoft

NVIDIA Graphics Performance and Authoring Tools for Direct3D 10

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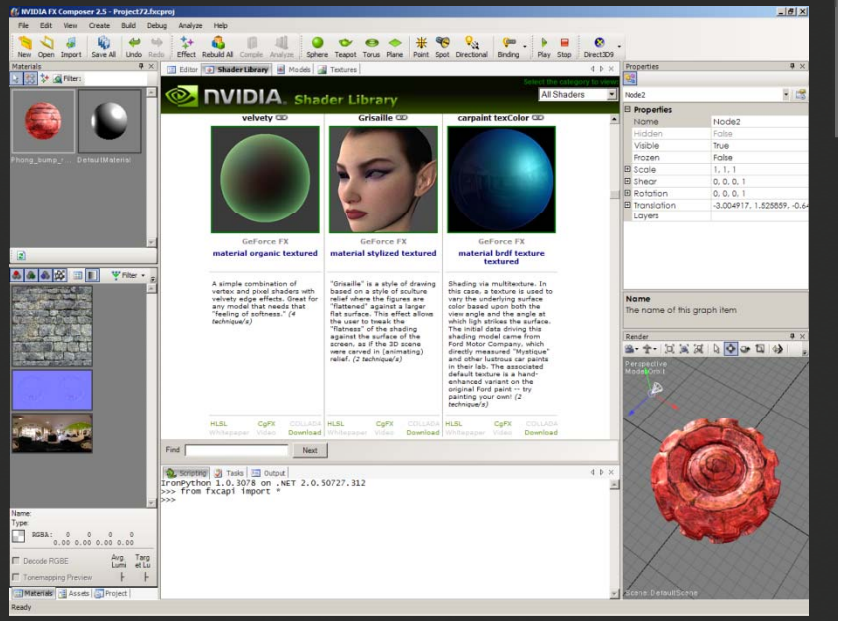
Agenda

- FX Composer 2.5
- Shader Debugger
- PerfHUD 6.1

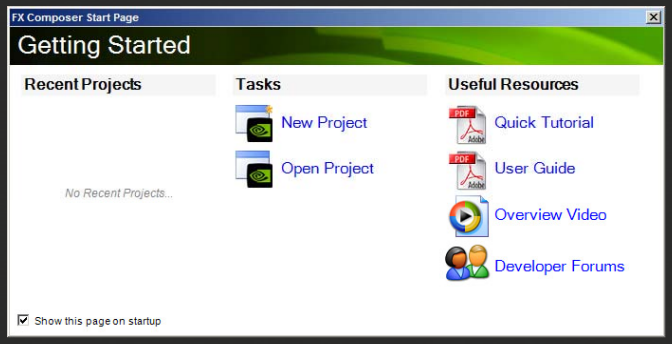
FX Composer 2.5

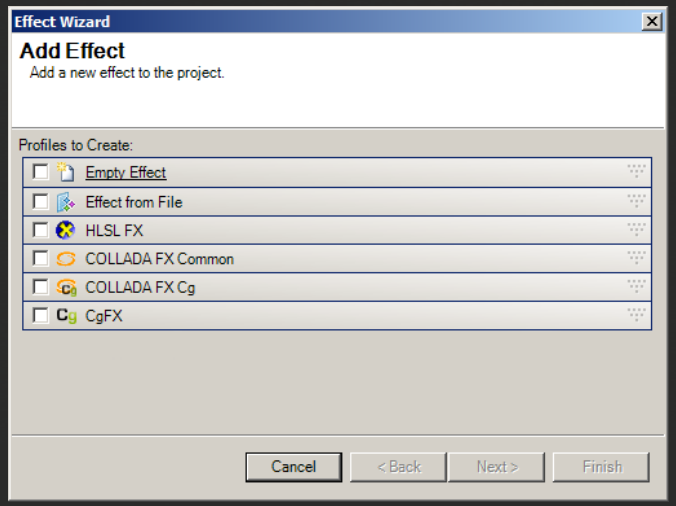


- Increase productivity
- Refine usability
- Improve stability
- Improve performance
- Enable Direct3D10
- First host for the NVIDIA Shader Debugger

Usability & Productivity

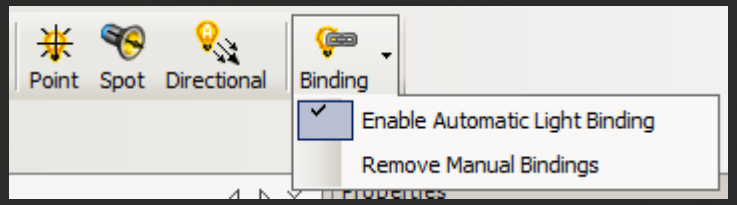
- Start Page
- Effect Wizard
- Toolbar
  - Large icons
  - More menu access
- Graphics API Toggle

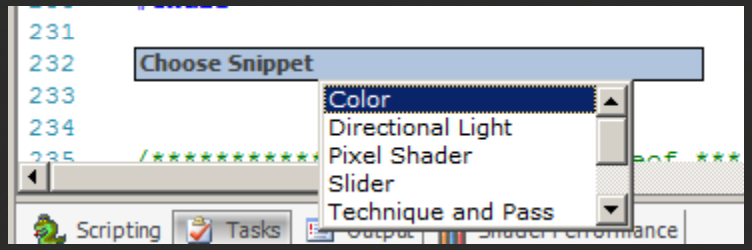




Usability & Productivity

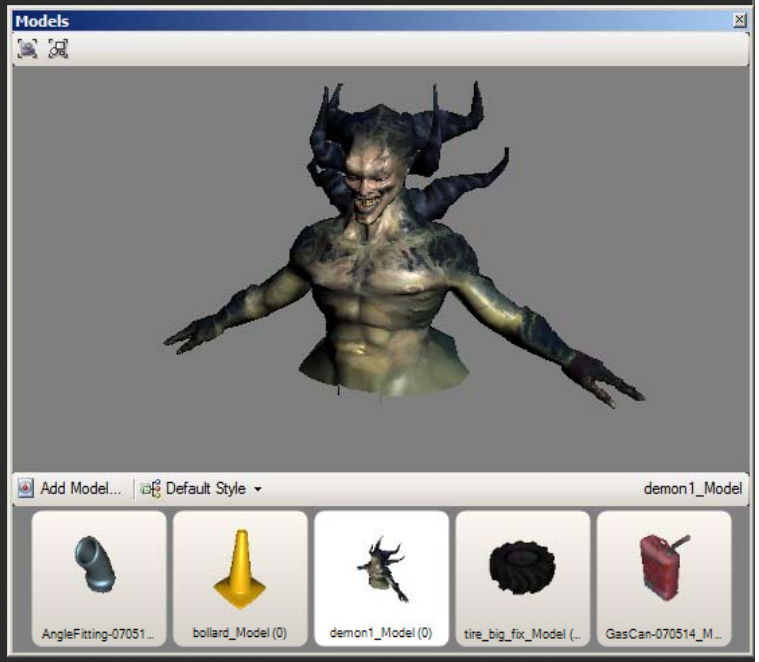
- Automatic light binding
  - Bind to nearest light
  - SAS driven
- Code Snippets
  - Commonly used code
  - User-extensible
  - Examples
    - Textures and samples
    - Techniques and passes
    - Render state blocks





Models & Styles

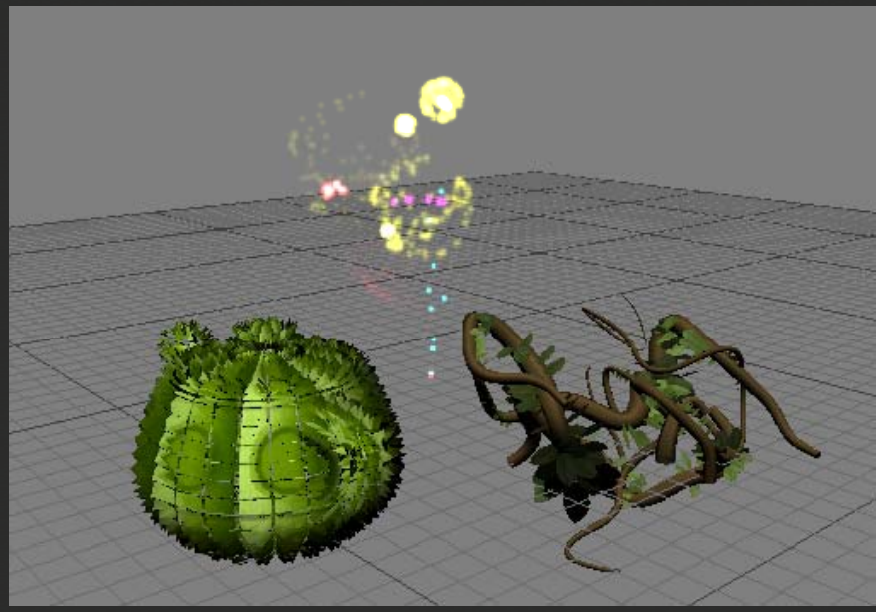
- Models are complete files DAE, FBX, etc.
- Styles are collections of material for a model
- Update your model without fear of losing styles
- Use models many times
  - In a scene
  - With different styles



DirectX 10

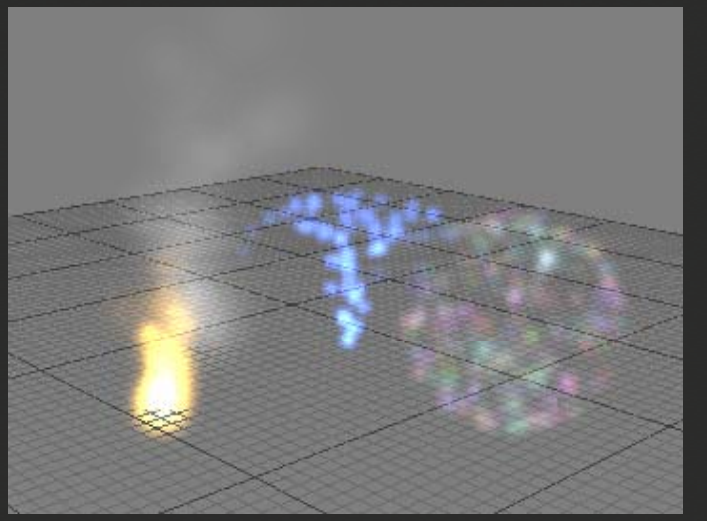
- Geometry shaders
- Texture arrays
- Stream out

- Picture includes
  - Explosion(GS)
  - Particles(GS,SO)
  - Pipes(GS,TA,SO)



Particle Systems

- Simple emitters for designing effects
  - Not for complex simulation
- Predefined templates to start
  - Fire
  - Smoke
  - Fireworks
  - Water fountain
- Customizable parameters

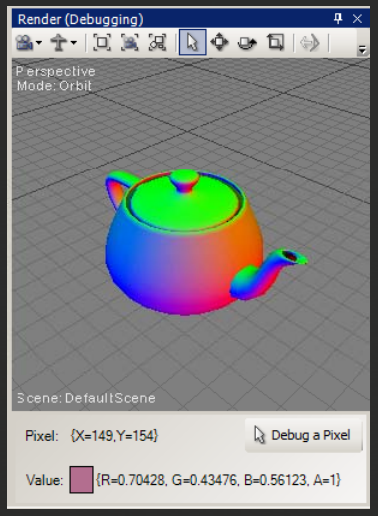


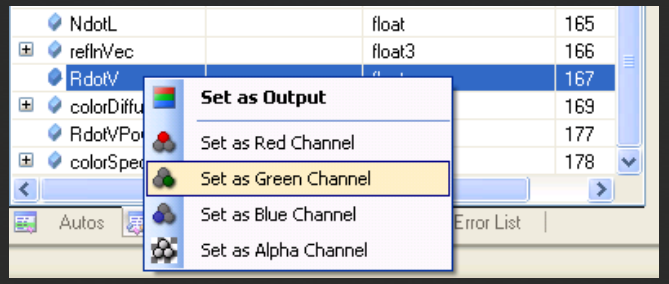
Shader Debugger

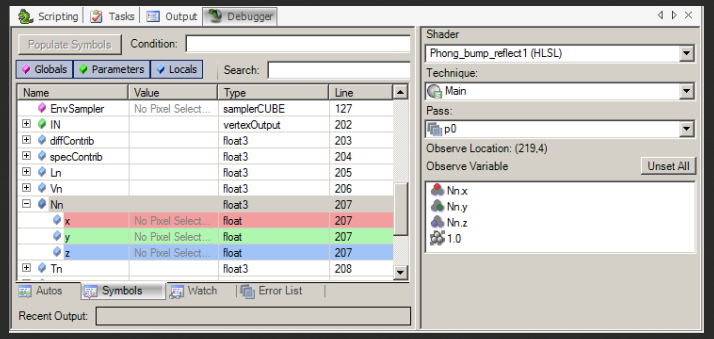
- Most desired feature in user surveys
- Debugging is not trivial
  - Constantly modifying shaders
  - Understanding rendered output
  - Distinguishing between materials
- Supports HLSL (current & legacy), Cg
- Debug single and multiple pixels
- Available as a plug-in to FX Composer 2.5

Shader Debugger

- Stepping through code
  - Run to cursor
  - Next Statement
  - Next Bookmark
- Visualize variables
  - Single or multiple pixel
- Conditional kill
- Watch expressions







demo

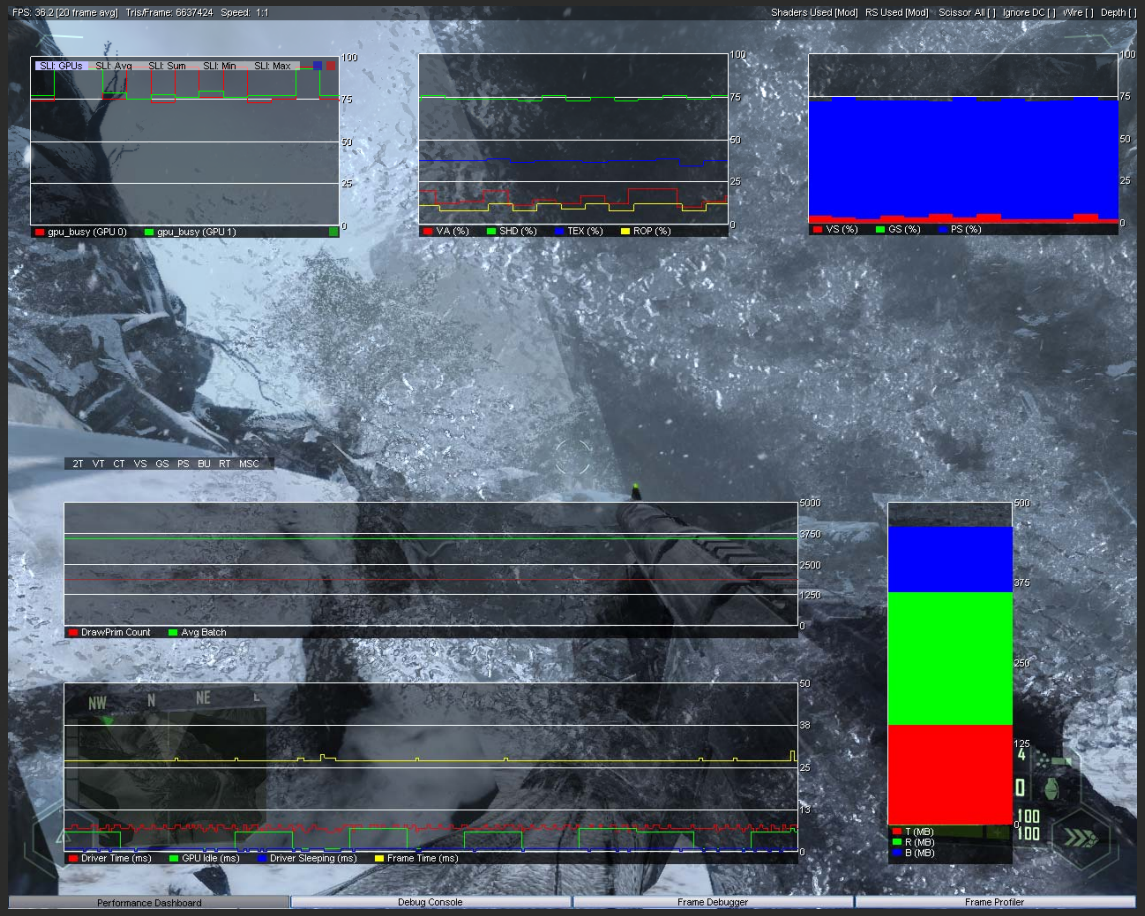
Introducing PerfHUD 6.1!

- Unified Driver on Windows Vista: use any release driver!
- Comprehensive SLI Support
  - Graphs for SLI specific data
  - Insight into SLI performance gotchas
- Powerful new debugging features
  - Texture visualization modes
  - API call data mining and analysis
  - Shader visualization

Introducing PerfHUD 6.1!

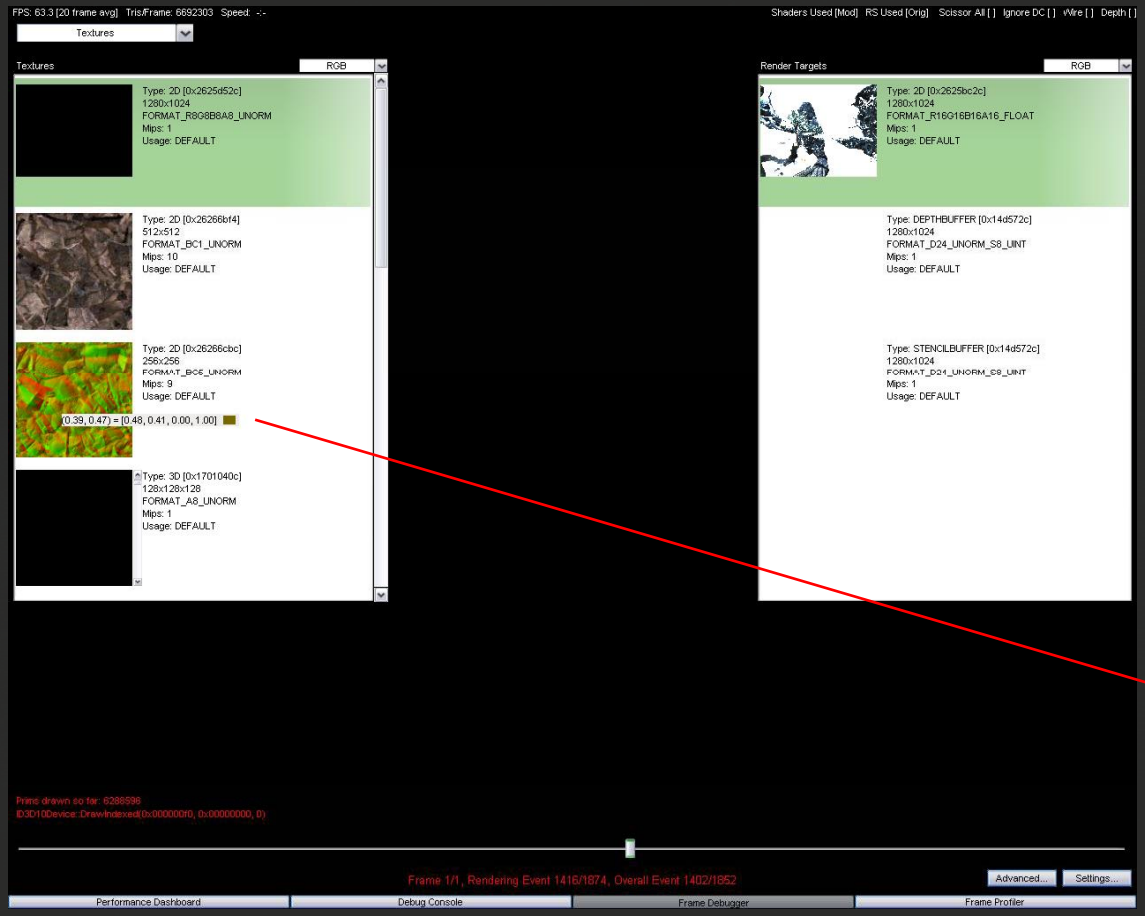
- Usability Features
  - All new hot key support
  - Rich use of Direct3D PerfMarkers
- Input module rewrite
- Additional API checks
- Bug fixes

PerfHUD 6: Performance Dashboard



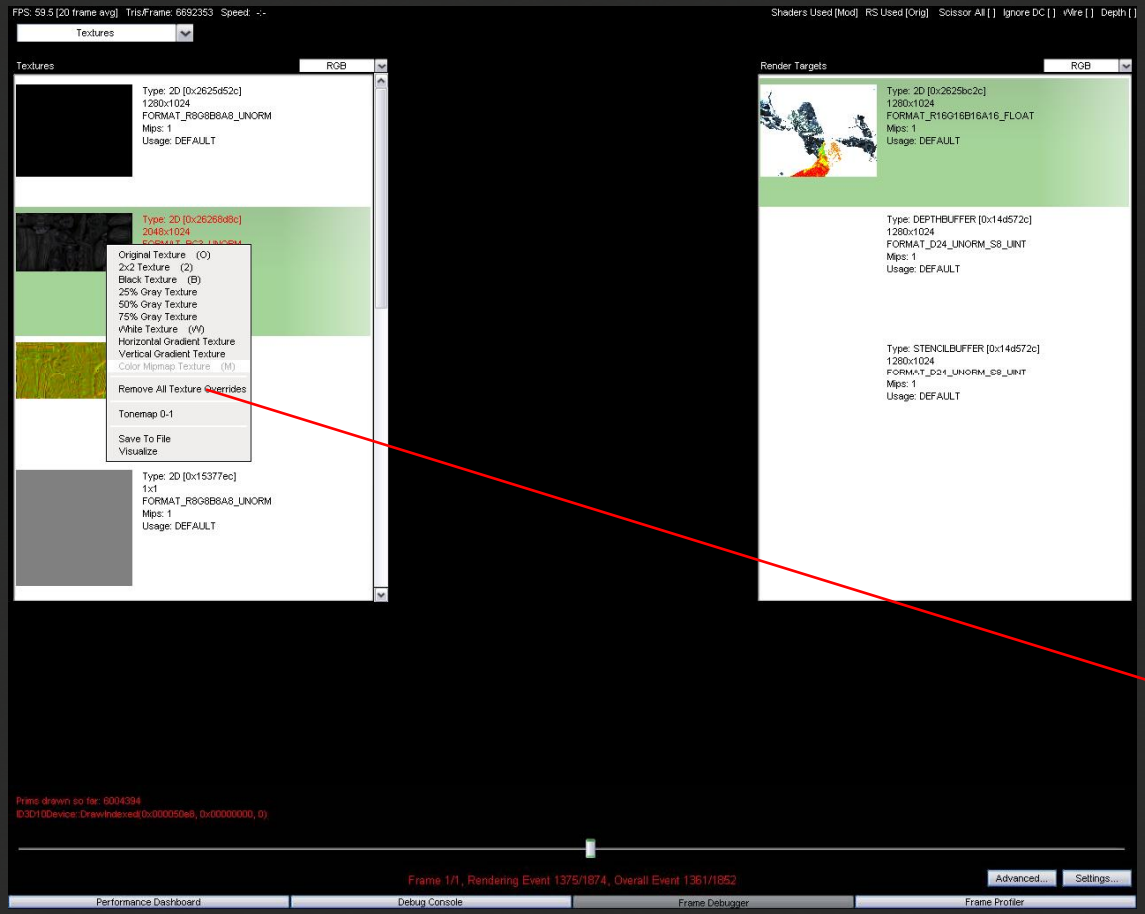
- Graph GPU and driver data
- Edit to suit your needs
- SLI Graph for multi-GPU
- API usage statistics

PerfHUD 6: Frame Debugger

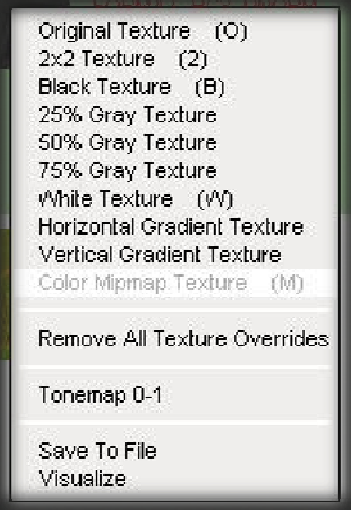


- Scrub through scene
- Visualize draw call info
- Textures and RTs
- Tooltips on buffers

PerfHUD 6: Frame Debugger



- Texture analysis: substitute precomputed textures
- Controllable through Perf Markers



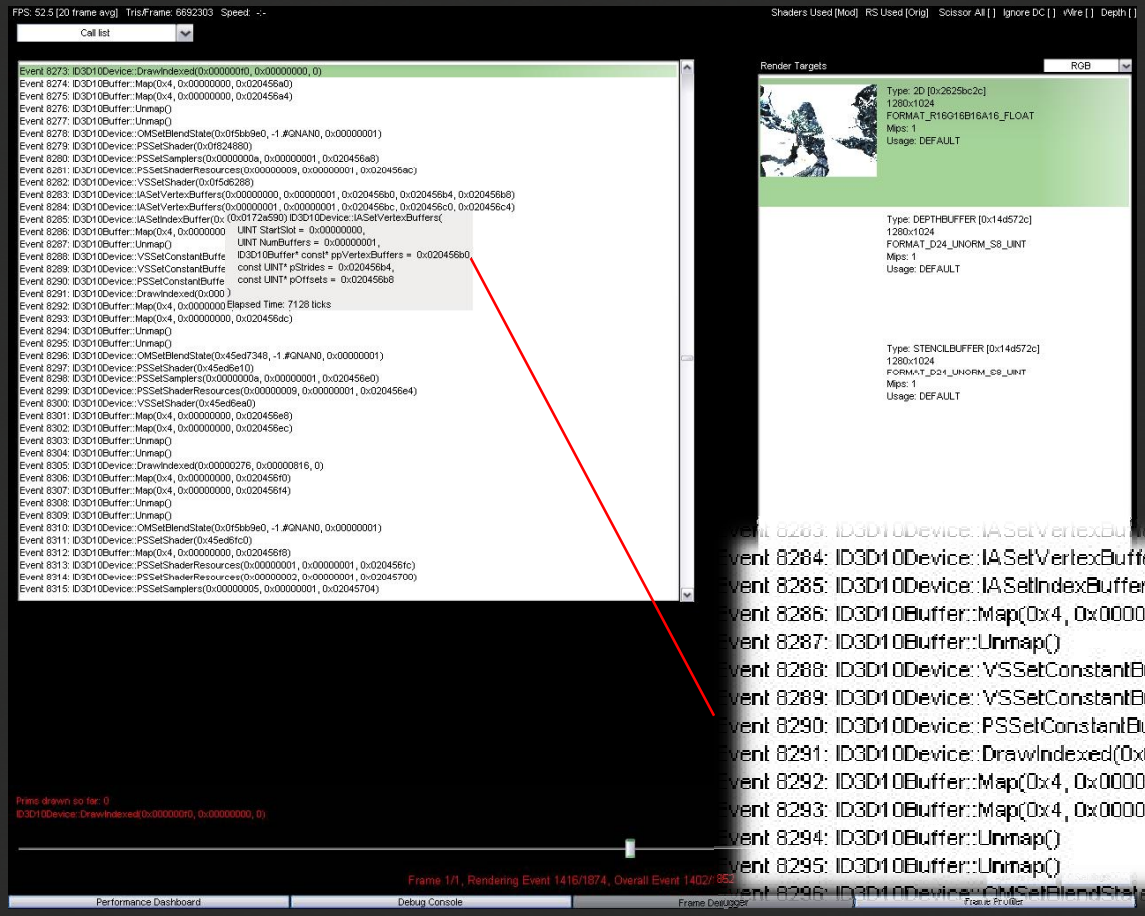
PerfHUD6: Frame Debugger

Buffer Visualization

- Visualize any buffer full screen
- 2D/3D/Cube/Arrays
- Pan/Zoom
- Change mipmap level

PerfHUD6: Frame Debugger

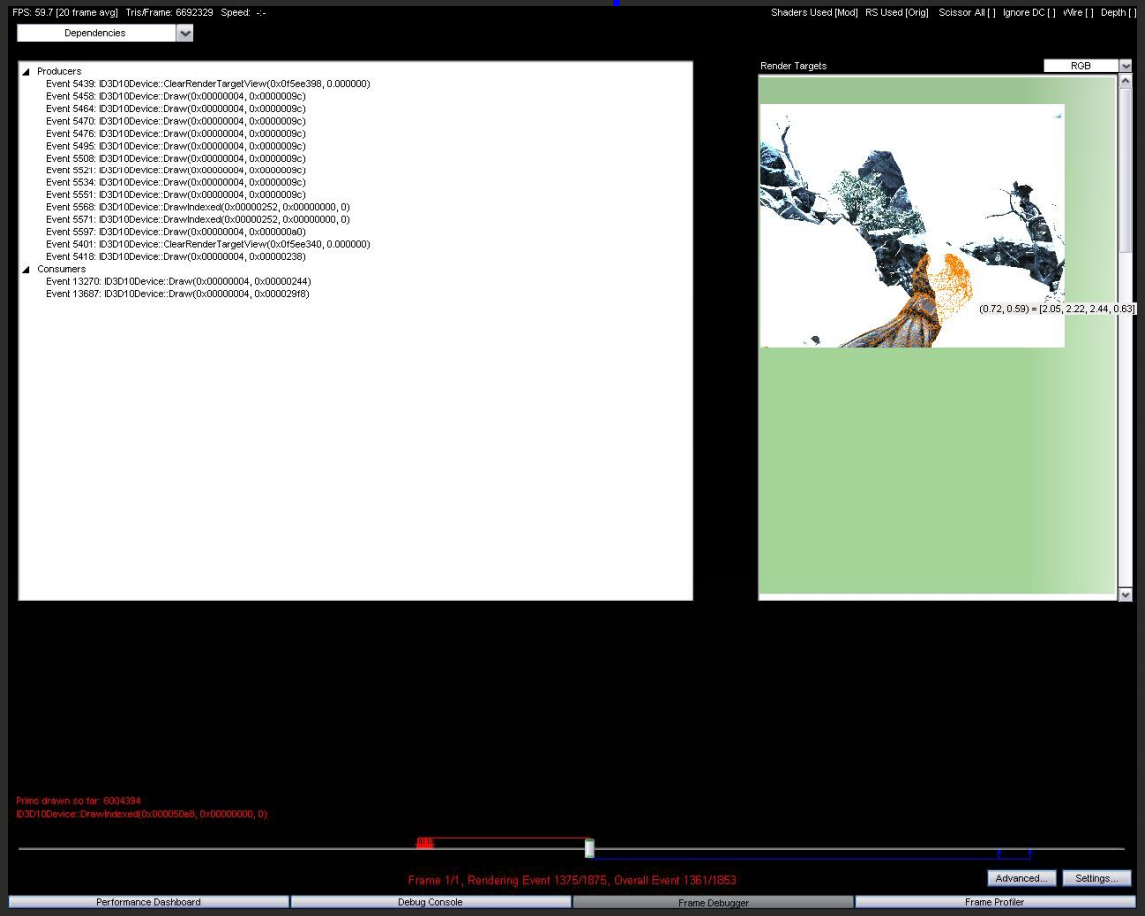
API Call List



- Based on a frame capture
- See frame events, including parameters
- Tooltips for details
- Connected to scrubber

PerfHUD 6: Frame Debugger

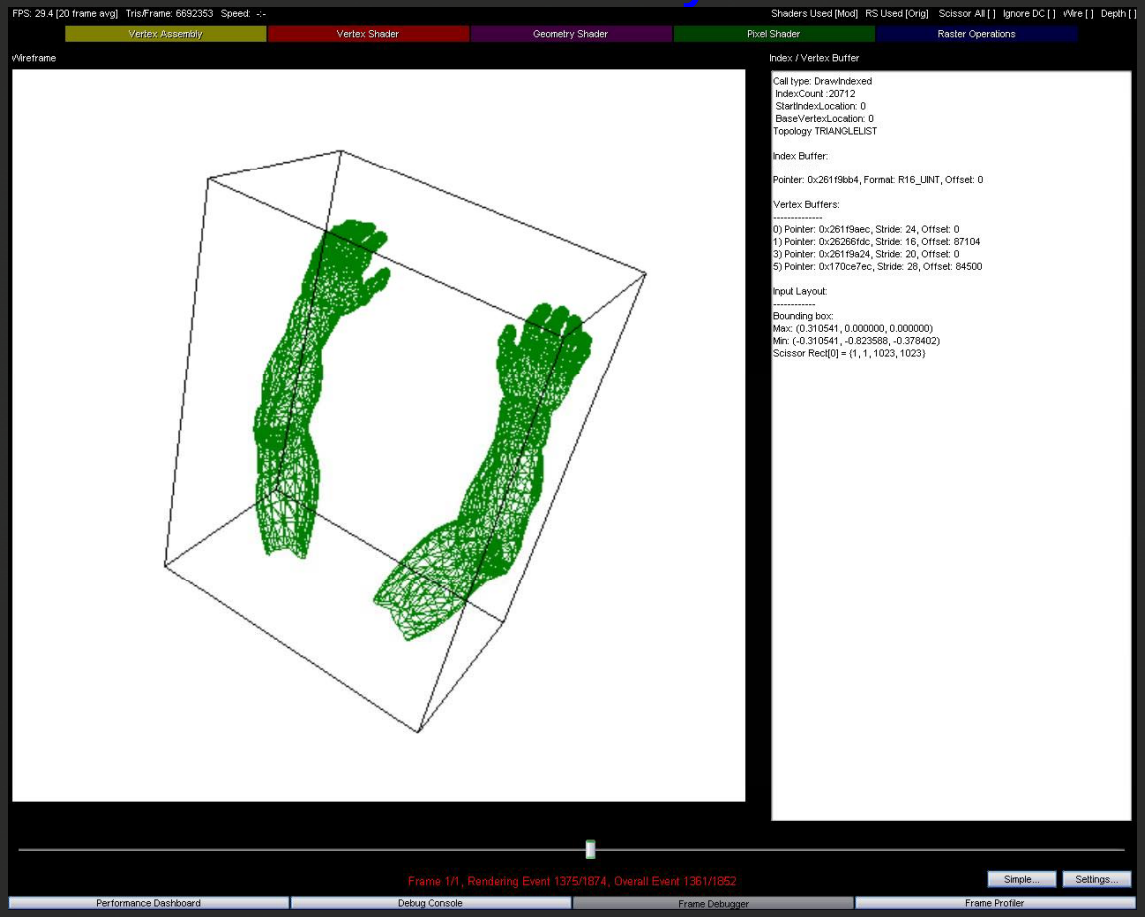
Draw Call Dependencies



- Show producers & consumers dependencies for each call
- These can hurt single GPU and SLI performance

PerfHUD 6: Adv Frame Debugger

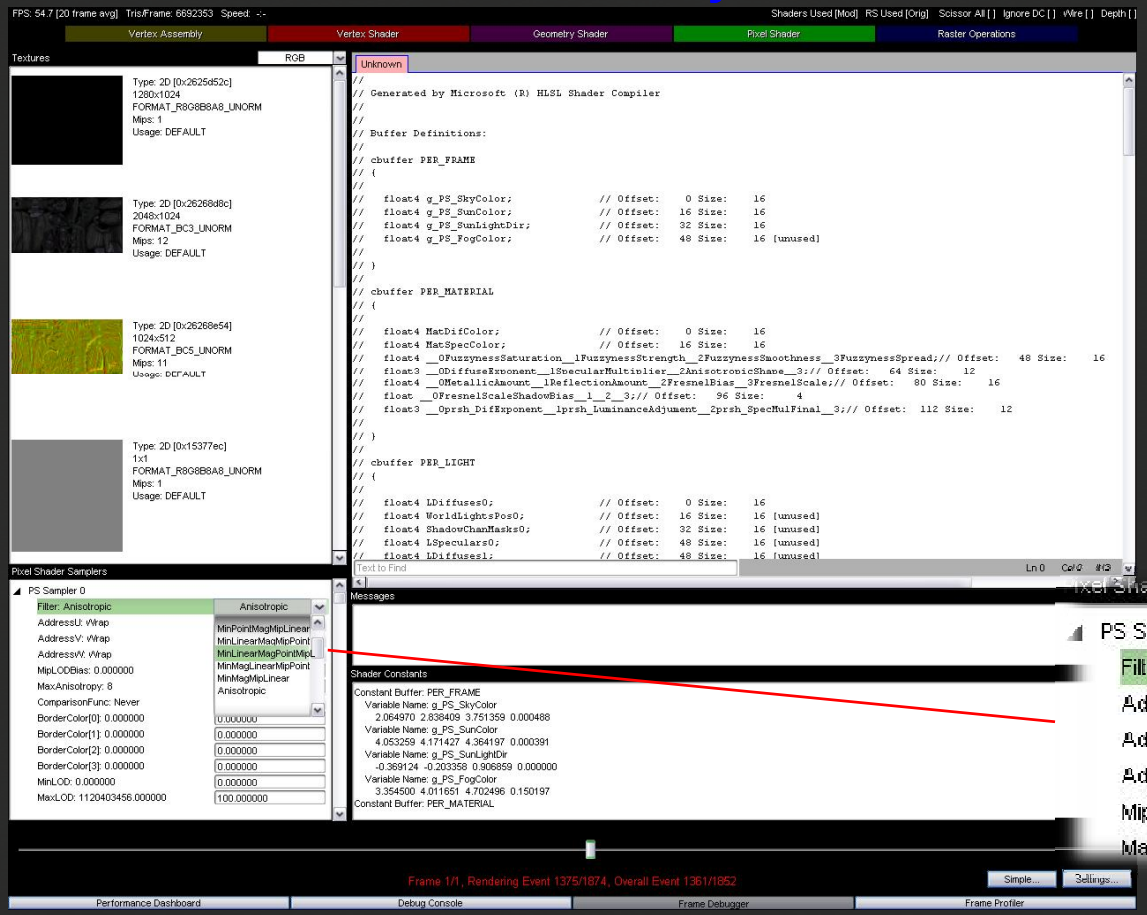
Vertex Assembly

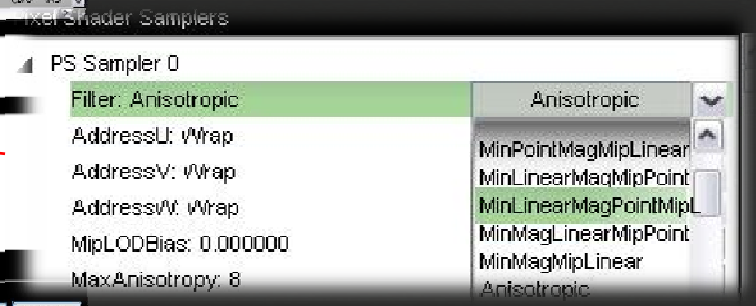


- Geometry preview
- Vertex and index buffer setup

PerfHUD 6: Adv Frame Debugger

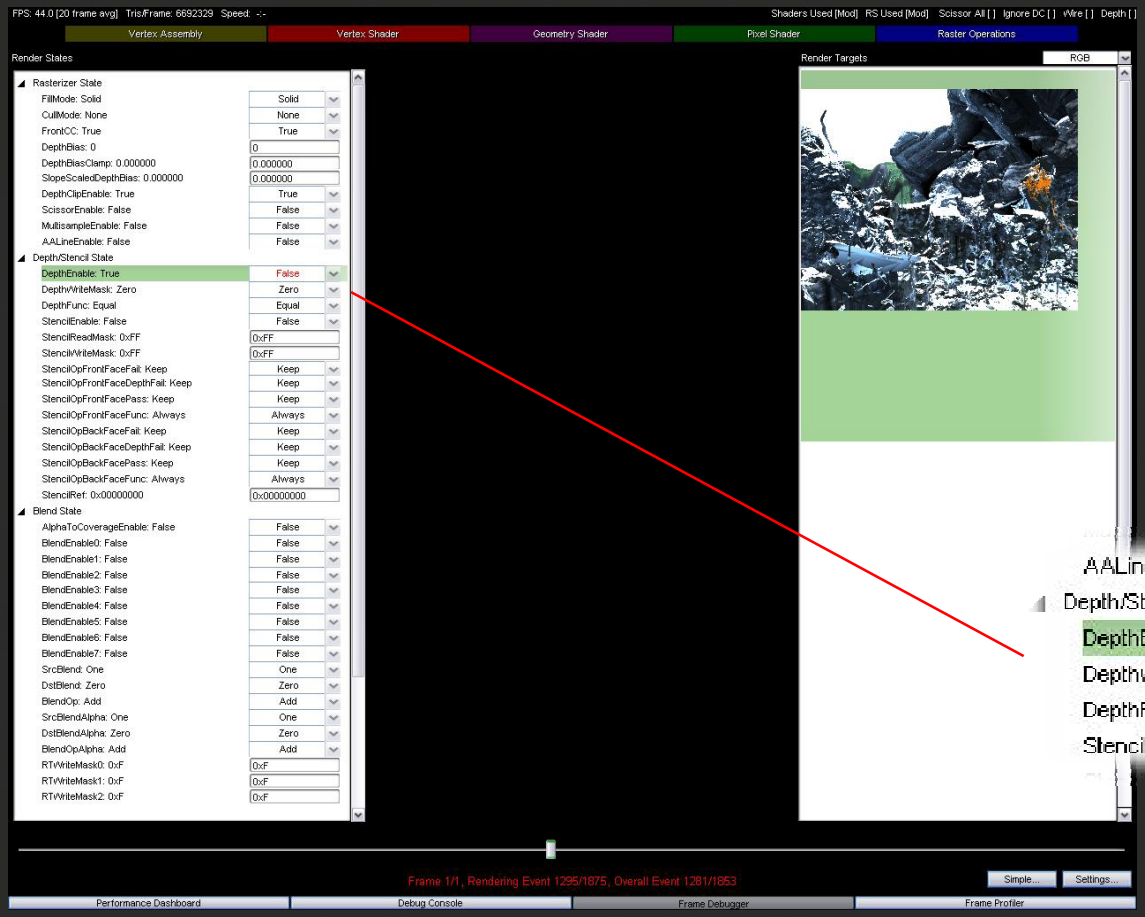
Vertex, Geometry and Pixel Shaders

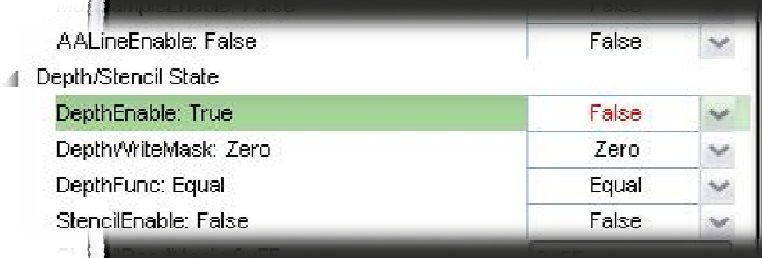




- Edit & continue shaders
- Visualize input textures
- Constants
- Sampler overrides

PerfHUD 6: Adv Frame Debugger

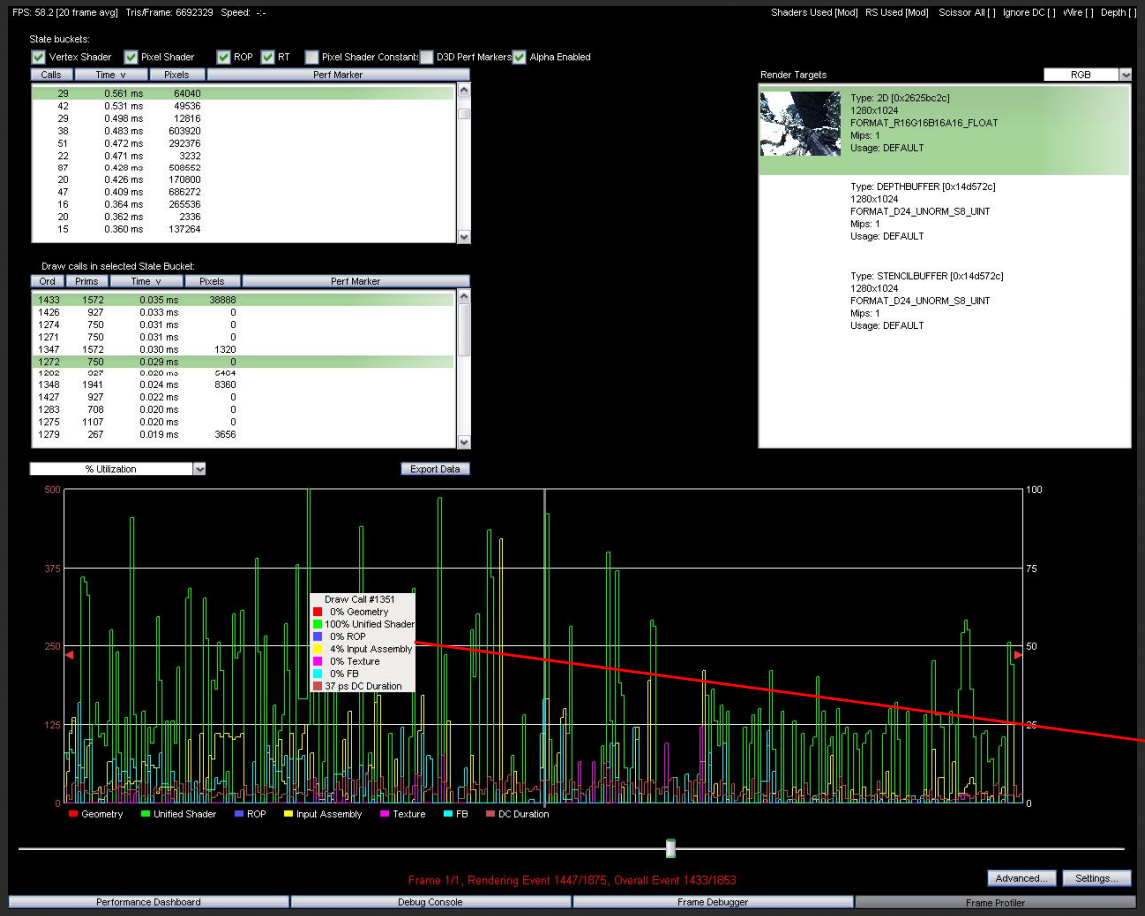




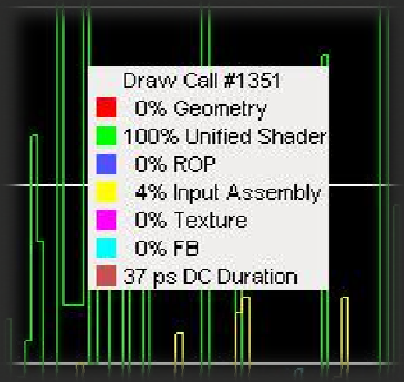
- Display and modify all render state settings
- Render targets displayed

PerfHUD 6: Frame Profiler

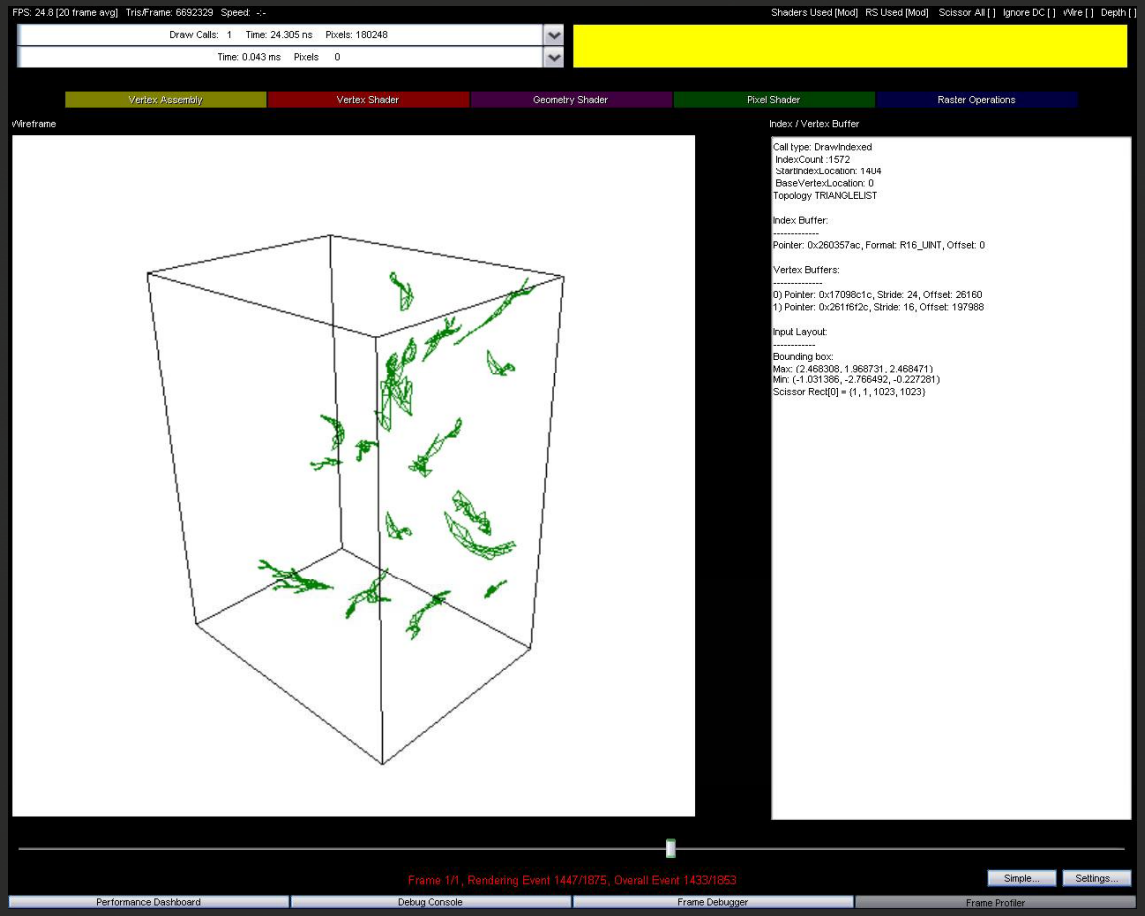
One button bottleneck determination



- All draw calls profiled
- Draw calls grouped by state buckets: multiply performance optimizations
- Multiple result graphs



PerfHUD 6: Adv Frame Profiler



- Same advanced features now in the profiling context

Questions ?

- Downloads
  - http://www.fxcomposer.com
  - http://www.perfhud.com
- Forums
  - http://developer.nvidia.com/forums
- Email
  - fxcomposer@nvidia.com
  - perfhud@nvidia.com

The NVIDIA Developer Toolkit

Content Creation	Software Development	Performance	Documentation
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mental mill Artist Edition	Cg Toolkit	PerfHUD 6	GPU Programming Guide
Texture Tools 2	NVSG	PerfSDK	Videos
Melody		GLExpert	Books
		NV PIX Plug-in	
		gDEBugger	
		ShaderPerf 2