Teaching Waffle how to wiggle

Emil Velikov
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Introduction

- What is Waffle
- Waffle API
- glx, cgl, egl, wgl and waffle
- Retro-fitting wgl in waffle
- Status
- What's next
- Summary
What is Waffle

- Yet another library that abstracts the GL winsys interaction
  - It is not SDL, there is no input handling etc
  - Zero platform dependant code
  - Platform & winsys - purely a runtime decision
Waffle API

waffle_display_connect
waffle_display_disconnect
waffle_display_supports_context_api
waffle_display_get_native

waffle_window_create
waffle_window_destroy
waffle_window_show
waffle_window_swap_buffers
waffle_window_get_native

waffle_dl_can_open
waffle_dl_sym
and a few others
glx

XOpenDisplay
glXChooseFBConfig
glXGetFBConfigAttrib
glXGetVisualFromFBConfig
glXCreateNewContext
xcb_create_window_checked
CGLChoosePixelFormat
CGLCreateContext
initWithFrame:NSMakeRect
egl

eglGetDisplay
eglInitialize
eglChooseConfig
eglCreateContext
eglCreateWindowSurface
wgl

CreateWindow
GetDC
ChoosePixelFormat
wglCreateContext
Waffle

waffle_init
waffle_display_connect
waffle_config_choose
waffle_context_create
waffle_window_create
Retro-fitting wgl into waffle

- **waffle_display_connect**
  - Create “root” window
  - Create a context and query the supported extensions

- **waffle_config_choose**
  - Create client window
  - Choose the config

- **waffle_context_create**
  - WglCreateContext

- **waffle_window_create**
  - ShowWindow
Retro-fitting wgl into waffle(2)

- A few extra quirks needed
  - wglGetProcAddress requires active context
  - dlopen/dlsym - LoadLibraryA/GetProcAddress and OpenGL ES*. 
Status

- All the code is at github, to be merged soon™
- Requires minor update of piglit, due to the wglGetProcAddress issue mentioned previously
What's next

- Get it upstream
- Add the missing `get_native` hooks
- Cleanup piglit to consistently use waffle and remove glut dependency
- Add GL dispatch into waffle ?
- Support for multi-monitor setups.
Summary

- Code is out there and works – tested against Windows Vista/7 on Nvidia based hardware

piglit 228a0530149, Windows 7 64bit, Nvidia GT 120M
summary:
  pass: 10087
  fail: 1446
  crash: 24
  skip: 5306
  total: 16864

- Beware - GPU lockups are common on Windows
References

• Waffle with WGL support
  https://github.com/evelikov/waffle/commits/yet-another-round-of-msvc-fixes-1.2

• Piglit with Waffle WGL
  https://github.com/evelikov/piglit/commits/waffle-WGL-1.2

• How to build, use and package WGL enabled Waffle/piglit
  https://github.com/evelikov/waffle/releases/tag/v1.1