Teaching Waffle how to wiggle

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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

cgl

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 an 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