

ETGG4804 — Optimization
Lab 2 — Intro to Graphics on the GBA
20 Points
Spring 2016

DUE ON 1/27/2016

Overview

The purpose of this lab is to introduce you to the Game Boy Advance's graphics hardware. After completing this lab, you should be able to:

- Setup the GBA graphics system.
- Switch between the GBA's three bitmapped modes.
- Render pixels to the screen.

Tasks

1. Set the GBA to mode 3 with only background 2 (BG2 bit) enabled.
2. Write a **draw_pixel** routine which will draw a pixel at a given (x, y) coordinate.
 - You will want to pass the color and coordinate information to the routine using the ARM registers, or the stack.
3. Use the **draw_pixel** routine to draw three pixels to the screen. Each pixel should be a different color.
4. Write a **fill_screen** routine which fills the entire screen with a color.
5. Write a **draw_line** routine which uses **draw_pixel** to draw a horizontal line on the screen.
 - You should pass the starting (x, y) coordinate to the routine, as well as the length (in pixels) of the line.

Bonus (4 Points)

1. Write a **fill_rect** routine which fills a rectangular area on the screen.
 - You should pass the top-left (x, y) coordinate, the width and height of the rectangle, as well as the color to fill it with.