

Making a gameboy game in 2019

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GConfs

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What's a gameboy ?

What's a gameboy ?

Figure: A gameboy

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160 x 144 LCD screen

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160 x 144 LCD screen
1 x 4 color palette

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Figure: A gameboy

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Custom 8-bit Sharp LR35902

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4-way D-pad

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Custom 8-bit Sharp LR35902

4-way D-pad

4 buttons: A, B, select, start

Figure: A gameboy

Gameboy specific constraints

Gameboy specific constraints

3 layers

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3 layers

Background

Gameboy specific constraints

3 layers

Background

Window

Gameboy specific constraints

3 layers

Background

Window

Sprite

Gameboy specific constraints

3 layers

Background

Window

Sprite

20 x 18 8x8 tiles

Gameboy specific constraints

3 layers

Background

Window

Sprite

20 x 18 8x8 tiles

256 items in tilemap

Gameboy specific constraints

3 layers

Background

Window

Sprite

20 x 18 8x8 tiles

256 items in tilemap

32 KB per rom

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Window

Sprite

20 x 18 8x8 tiles

256 items in tilemap

32 KB per rom

10 sprites per line

Gameboy specific constraints

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20 x 18 8x8 tiles

256 items in tilemap

32 KB per rom

10 sprites per line

Figure: 10 sprites on a line

Gameboy specific constraints

3 layers

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Sprite

20 x 18 8x8 tiles

256 items in tilemap

32 KB per rom

10 sprites per line

Figure: More than 10 sprites on a line

Gameboy specific constraints

3 layers

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Window

Sprite

20 x 18 8x8 tiles

256 items in tilemap

32 KB per rom

10 sprites per line

Essentially no 3D

Gameboy specific constraints

3 layers

Background

Window

Sprite

20 x 18 8x8 tiles

256 items in tilemap

32 KB per rom

10 sprites per line

Essentially no 3D

Figure: Toy Story Racer - 2001

Here's a little lesson in history

Devkits

Here's a little lesson in history

Devkits

Figure: The Wide-Boy - Front

Here's a little lesson in history

Devkits

Figure: The Wide-Boy - Back

Here's a little lesson in history

Devkits

Lots-o'-assembly

Here's a little lesson in history

Devkits

Lots-o'-assembly

Lots-o'-optimization

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Let's take a look at a real game

Why make a gameboy game in 2019

Design with constraints

Why make a gameboy game in 2019

Design with constraints
"Simple" sprites

Why make a gameboy game in 2019

Design with constraints

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An active community, on modern social networks

Sidenote: about GB Studio

Figure: GB Studio

Sidenote: about GB Studio

The RPG Maker of gameboy development

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The RPG Maker of gameboy development
Free as in freedom and free beer

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Cross-platform

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Cross-platform

Exports to web

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Unfortunately, EPITA syndrome is a thing ...

What you need to get started

What you need to get started

A programming language

A compiler

A library

An editor

A sprite editor

A tilemap editor

Tests

CI / CD

An emulator

Tools - Programming language

Tools - Compiler

[gbdk-n](#) by Andreas Karlsson

Sidenote: about gbdk-n

Relatively up-to-date

Sidenote: about gbdk-n

Relatively up-to-date

Easy to use

Sidenote: about gbdk-n

Relatively up-to-date

Easy to use

Complete documentation

Sidenote: about gbdk-n

Relatively up-to-date

Easy to use

Complete documentation

Tools - Editor

Tools - A sprite editor

Tools - A tilemap editor

Criterion by Snaipe

Gitlab CI
[gb_img](#) by me

Playing your game

Method	Cost
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Table: Methods by obtainability

Playing your game

Method	Cost
Wide-Boy devkit	

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Wide-Boy devkit	349€

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Table: Methods by obtainability

BGB by bircd

Let's read some code

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Figure: Gameboy screen coordinates

How about a demo ?

What about real hardware ?

Possible improvements

Add menus

Possible improvements

Add menus

Add sound

Possible improvements

Add menus

Add sound

Migrate from C to ASM for performance

Possible improvements

Add menus

Add sound

Migrate from C to ASM for performance

Make something more ambitious

Questions, comments, something unclear ?

Thank you for listening

Bibliography

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