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From J2ME to iOS

Galaxy on Fire 2
on the iPad and iPhone

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Agenda

- ③ FISHLABS
- ③ What's Galaxy on Fire 2
- ③ Concept
- ③ Graphical Assets
- ③ Engine/Game Adaptation
- ③ Sound
- ③ Learning



FISHLABS

- ⊕ Specialized in premium 3D mobile games in Java and C/C++
- ⊕ Headquartered in Hamburg, Germany
- ⊕ Founded 2004
- ⊕ 35 full-time employees
- ⊕ 2m Java/BREW game downloads through 160+ carriers & portals
- ⊕ 30m iPhone game downloads



What's GOF 2





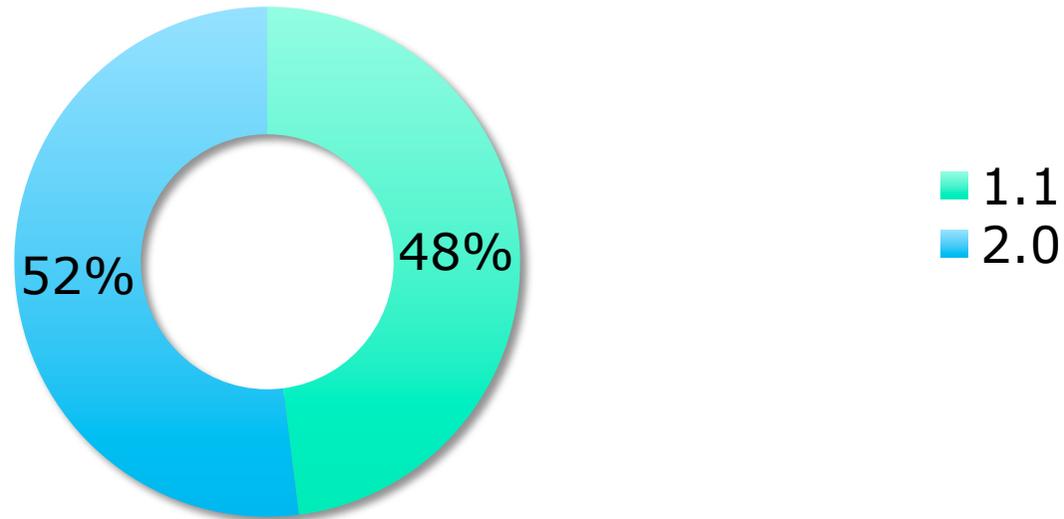
Concept

- ⊕ Starting October 2009
- ⊕ GOF 2 is a perfect fit for iDevices
- ⊕ Basic game structure can be the same
- ⊕ Deliver top notch graphics



Concept

OpenGL ES distribution July 2010



1.1 : iPod Touch 1st, 2nd Gen; iPhone 2G, 3G

2.0 : iPod Touch 3rd Gen; iPhone 3GS; iPhone 4



Concept

- ⊕ iDevices fragmentation
 - ⊕ Different screen sizes: 480x320, 960x640, 1024x786
 - ⊕ Different performance: CPU, GPU, Memory
 - ⊕ Different OS: iOS 3.0 – iOS 4.0
 - ⊕ Goal: decent framerate
- ➔ iPhone 3G and iPod touch 2nd gen. lowest



Concept

- ⊕ New mood concepts necessary
- ⊕ Switching from keypad to touch
- ⊕ New interface
- ⊕ Pimp up the gameplay



Concept





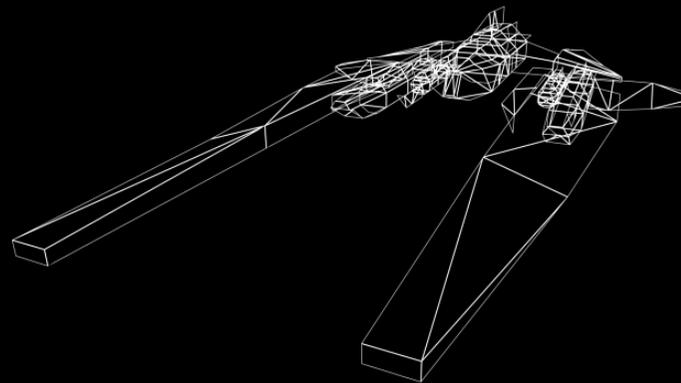
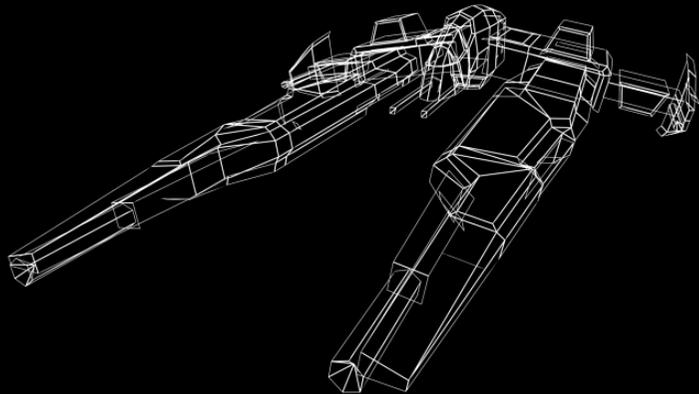
Graphics / Meshes



iPhone - 1426 Faces
512x512x24 Texture

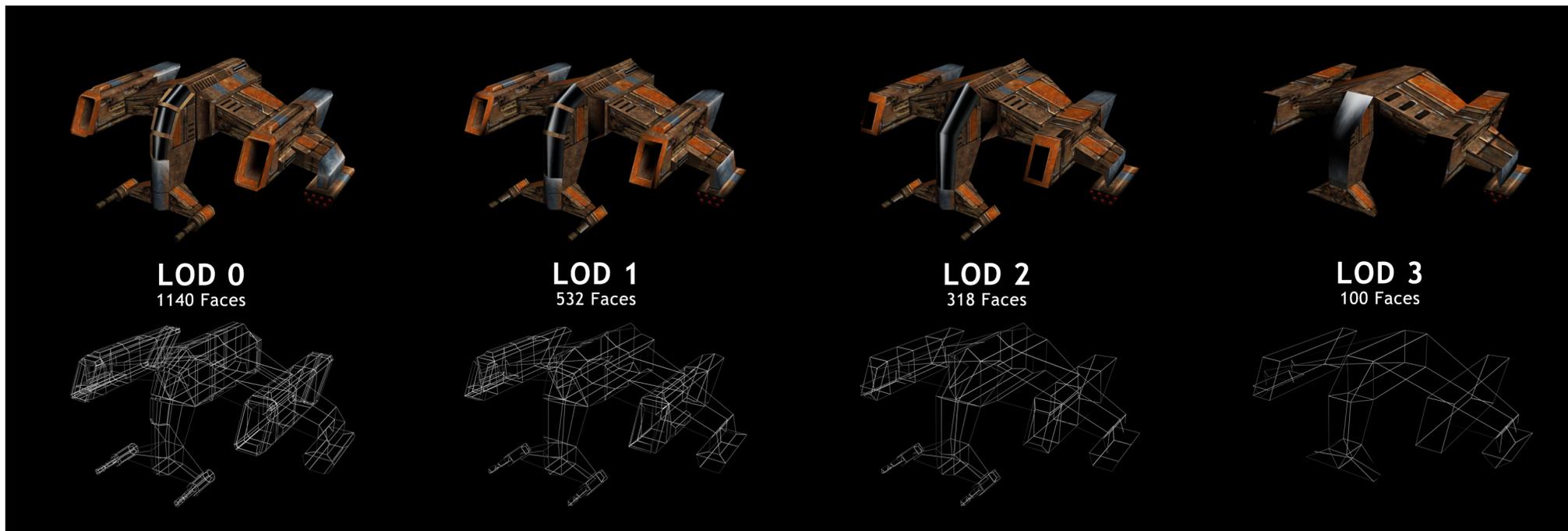


J2ME - 727 Faces
128x128x8 Texture





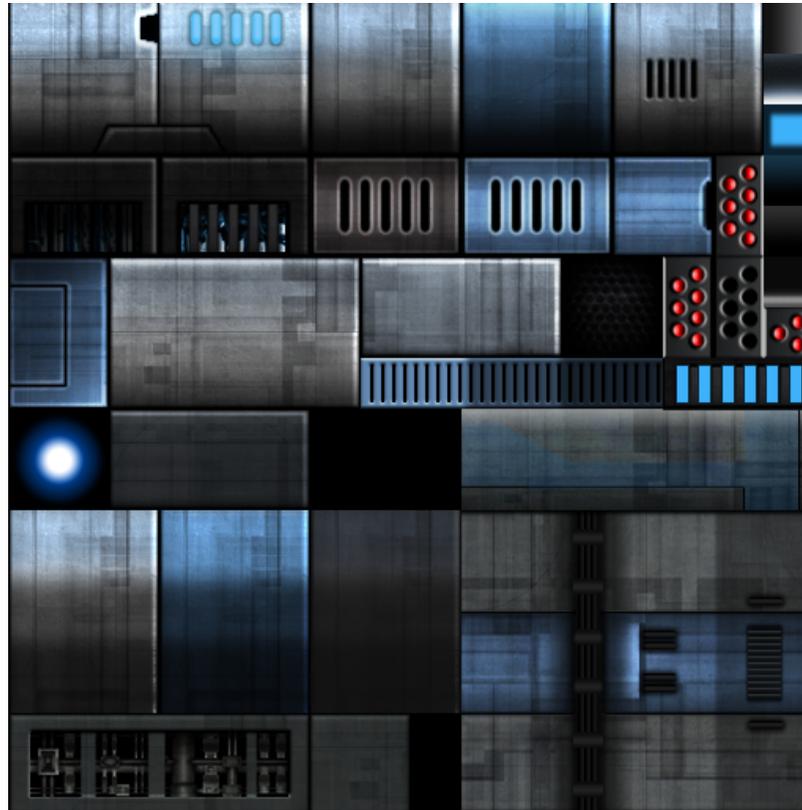
Graphics / Level of Detail





Graphics / Textures

- ⊕ iDevices: up to 2048x2048 pixels
- ⊕ iDevices: 128 textures for 3D models





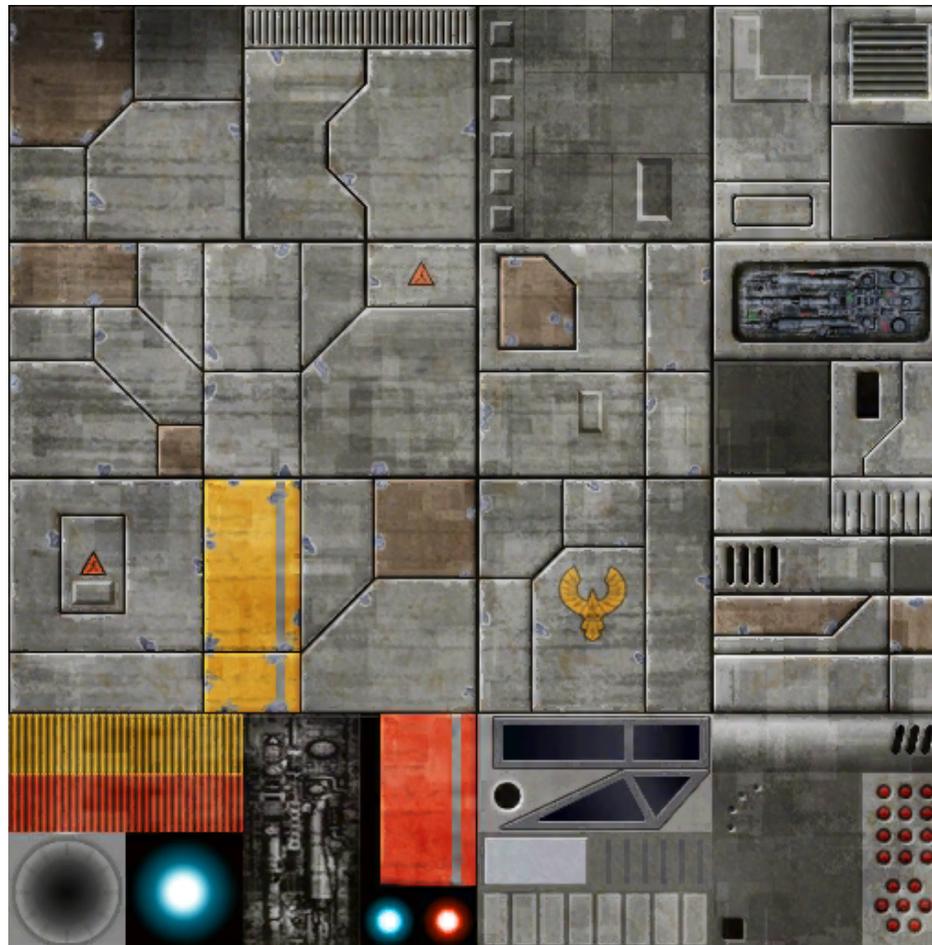
Graphics / Texture Compression



Uncompressed
32bit
512x512
➔ 1024 KB



Graphics / Texture Compression

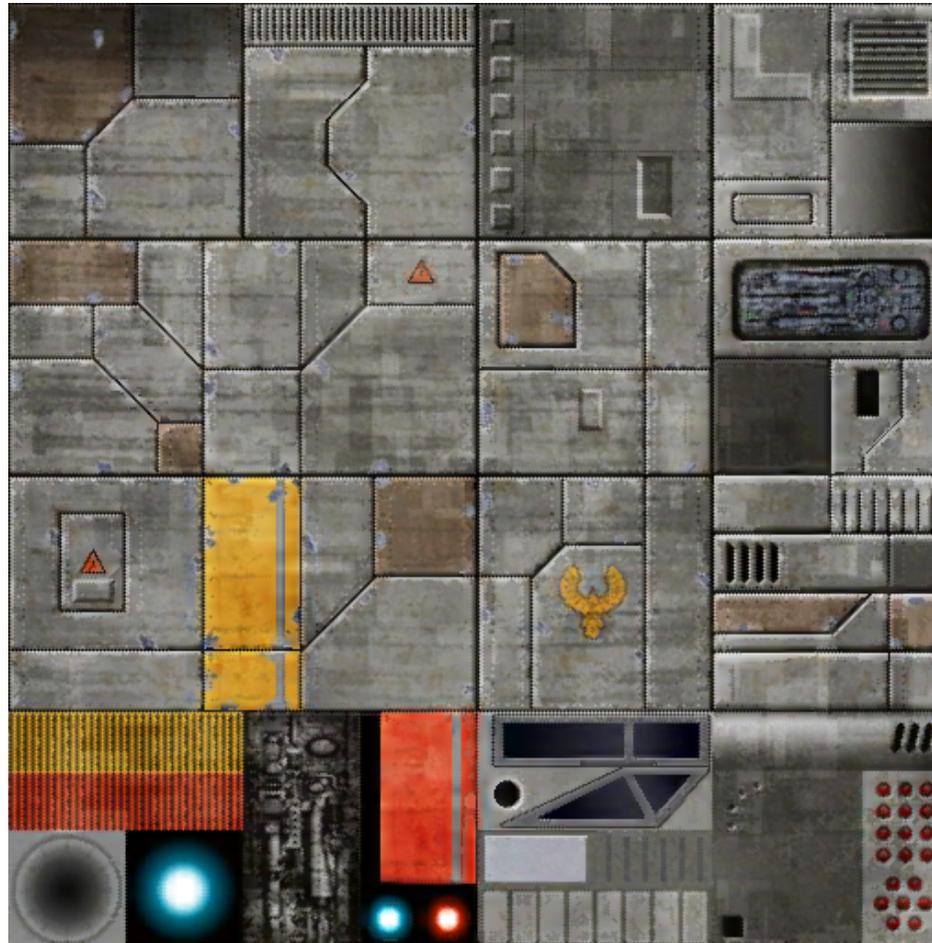


PVRTC4

12.5% Size
→ 128 KB



Graphics / Texture Compression



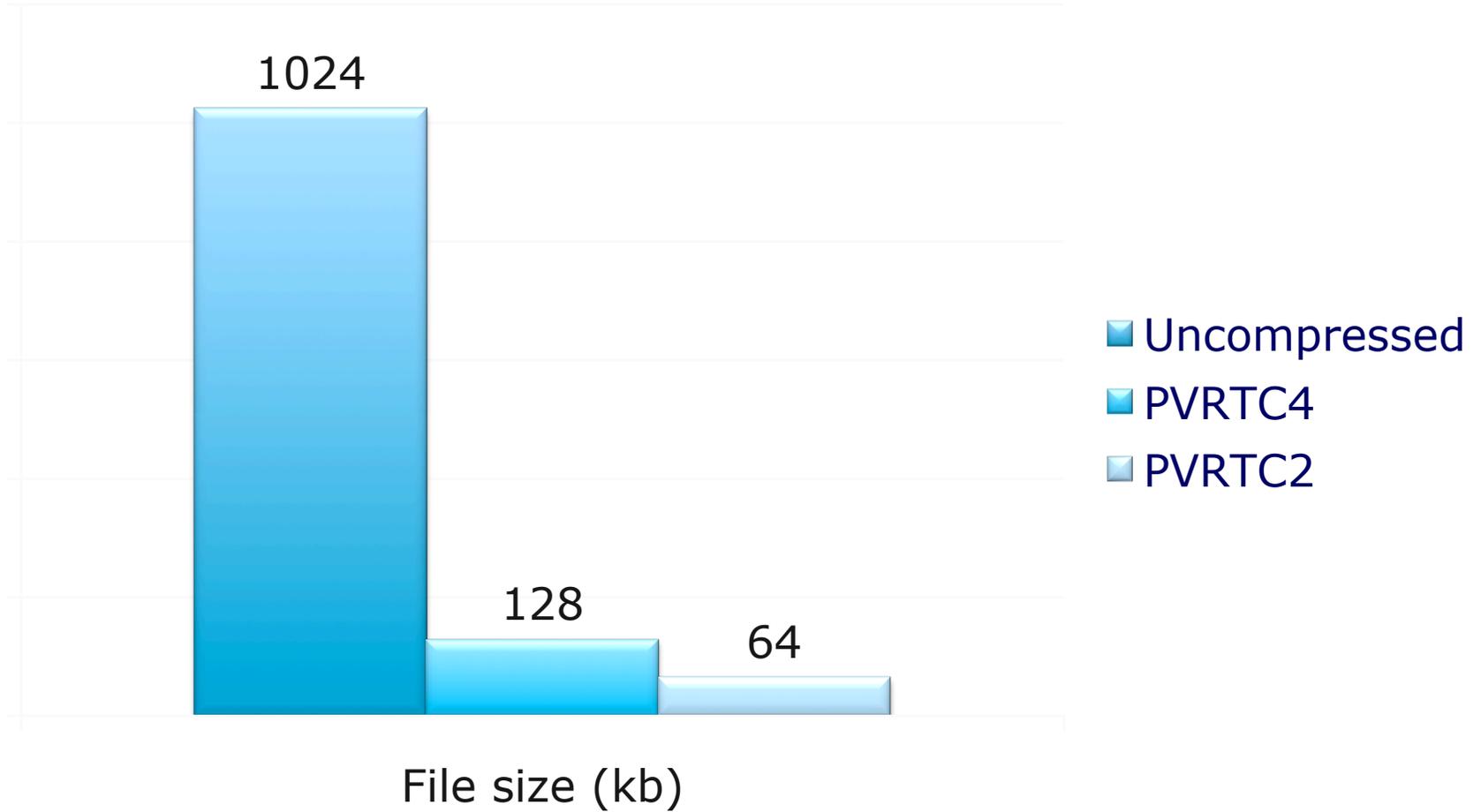
PVRTC2

6.25% size

→ 64 KB



Texture Compression





Graphics / FX



- ⊕ Particle systems
 - engine
 - smoke
 - atmospheric fog
- ⊕ Animation for explosions
- ⊕ Real-time lighting



Engine

From integer to float

- ⊕ Java: integer due to absence of FPU
- ⊕ iDevices: floating- instead of fixed-point
- ⊕ → Make use of the FPU



Engine

State sorting

- ⊕ Java: limited materials
 - ⊕ Rendering strategy: immediate mode
 - ⊕ iOS: up to 30 materials
 - ⊕ Rendering strategy: retain mode
-
- ⊕ Drawing Order
 1. Opaque objects first
 2. Alpha testing objects
 3. Alpha-blended objects



Engine

Batching: From 60 to 1 draw calls





Engine

View frustum culling





Game Coding

- ⊕ Java: garbage collection
- ⊕ C/C++: own memory handling
- ⊕ C/C++: remember to init
- ⊕ Keypad to touch
- ⊕ New interface layout
- ⊕ `Station [] [] [] stations;`



Sound

⊕ Java:

- only limited sound capability
- use of midis and simple sound effects

⊕ iDevices:

- great sound hardware
- full OpenAL support



Learning

- ⊕ It's not a PORT
- ⊕ Think more of a console approach
- ⊕ Don't underestimate the beta phase
- ⊕ Developers are the worst testers
- ⊕ Avoid feature creep
- ⊕ Have fun!





Thank you

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