

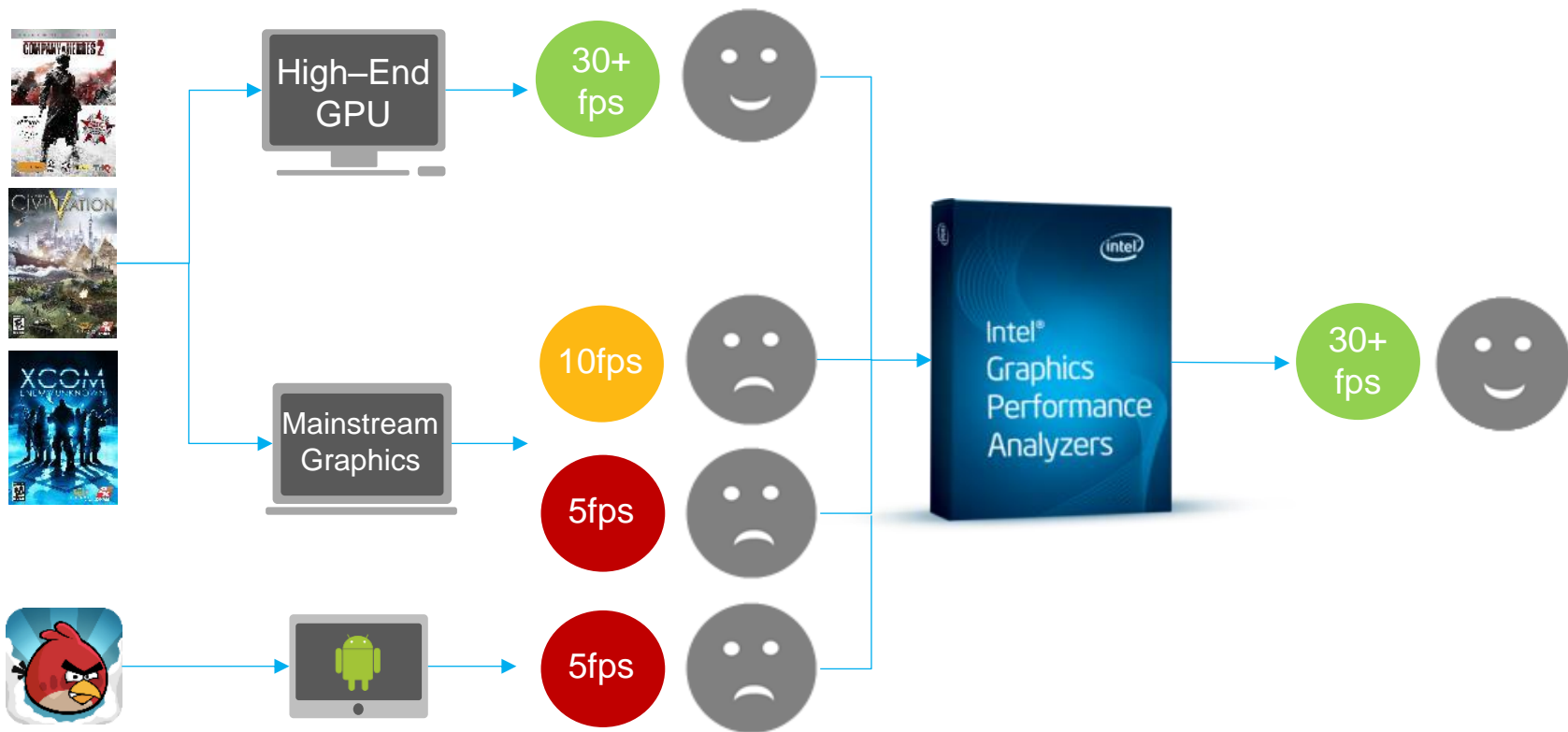


# Intel® GPA Workflow Overview

Роман Хатько, Intel



# We have the app to optimize your games!



Intel® Graphics Performance Analyzers (GPA)

# For Windows and Android games!



Windows  
Gaming



Android  
Gaming

## OS support

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- Win 7, Win 8.1 64bit

## DirectX

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- DX 9.x, 10.x, 11.x



## Hardware

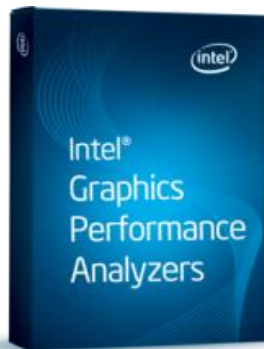
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- DirectX 9-compatible GPU or newer

## Extra

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- HTML5 in browsers  
- Windows UI apps



## Host OS

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- Windows, Linux, MacOS X front-end

## Android OS

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- 4.x

## Hardware

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- Intel™ Atom-powered Android device

## OpenGL ES

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- 1.x, 2.x

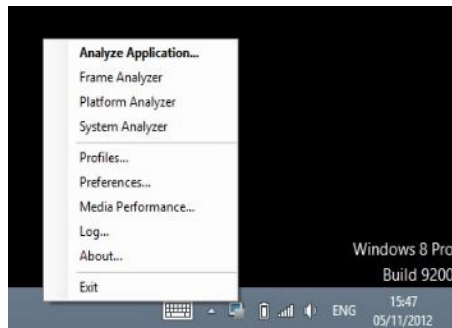
Intel® Graphics Performance Analyzers (GPA)



# What's inside?

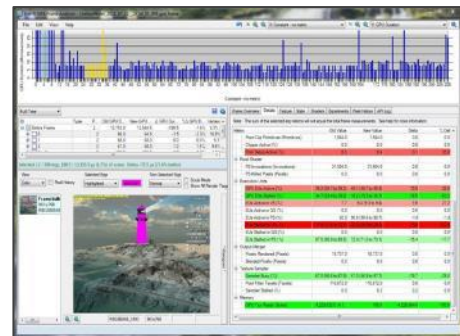
## GPA Monitor

GPA configuration tool  
Analysis starting point  
HUD profiles  
Settings



## Frame Analyzer

Frame-level analysis  
Draw-call bar-chart  
DX GL ES resources  
Metrics, experiments



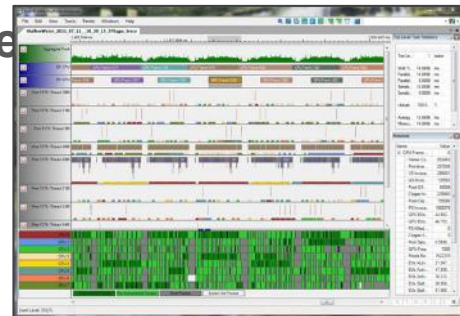
## System Analyzer / HUD

Real-time analysis  
Frame-rate and metrics  
Overrides  
Frame/Trace capture



## Platform Analyzer

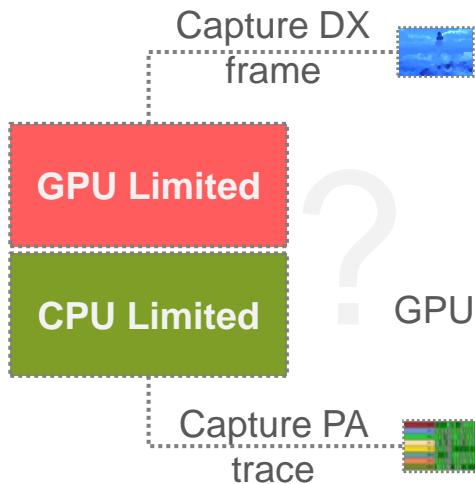
Visual tasks timeline  
GPU / DX frame graph  
DX / CPU tasks  
ETW tasks



# Workflow

## Game with HUD / System Analyzer:

Real-time in-game Analysis / Experiments



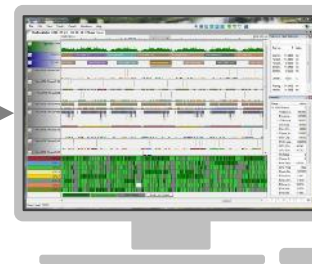
## Frame Analyzer:

Deep frame-level Analysis / Experiments



## Platform Analyzer:

GPU / DX / CPU tasks visual timeline



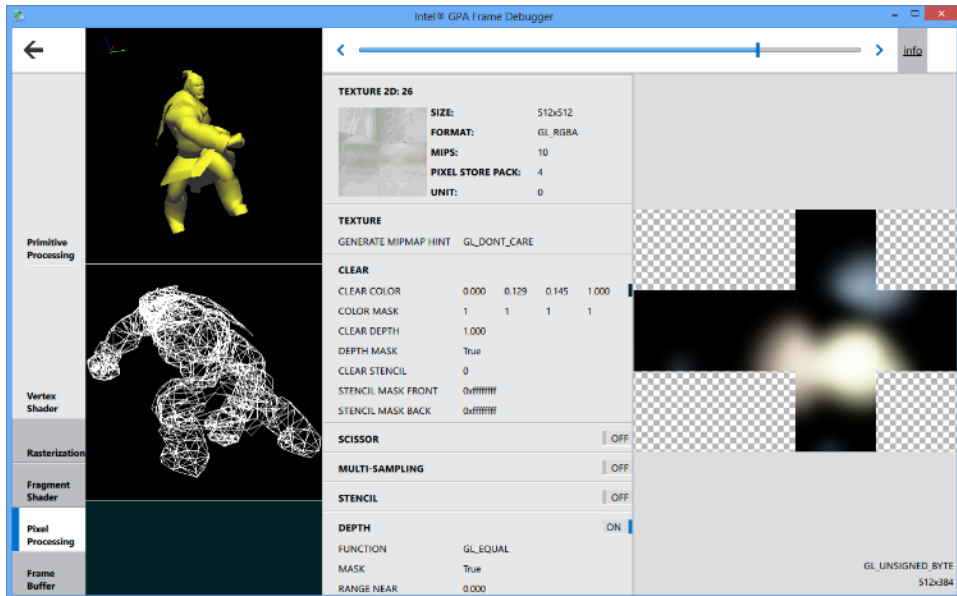
1 Run with the tool

2 Find main limiting factor

3 Do detailed analysis

# Intel® GPA Frame Debugger

 <http://intel.com/software/gpa>



## Debugging on Android

- An easy way to debug rendering problems in OpenGL ES games
- Quick test for portability issues
- Supports GL ES 1.x, 2.0
- Runs on Windows