SGX DDK Android OGLES 1.1 & OGLES 2.0

Software Test Specification

Filename : SGX DDK Android OGLES 1.1 & OGLES 2.0.Software Test Specification.docx

Version : 2.0.9 External Issue

Issue Date : 26 Jan 2012

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1. Introduction

This document specifies the Test and Qualification Plan for the Android driver for OMAP4430 (Blaze). The following sections of this document define the structure of test procedures for all functionality implemented by this driver, and the software and configuration settings under which the driver will be tested.

1.1. Related Documentation

Document
SGX DDK for Android Software Architecture Specification
SGX DDK for Android Software Functional Specification
Software Test Specification OpenGL ES 2.0
Software Test Specification OpenGL ES Shading Language
Software Test and Qualification Specification OpenGL ES1.1

1.2. Document Scope

The plan will specify the procedures involved in test and qualification of driver software implementations for PowerVR hardware IP as employed in Blaze platforms.

1.3. Documentation Overview

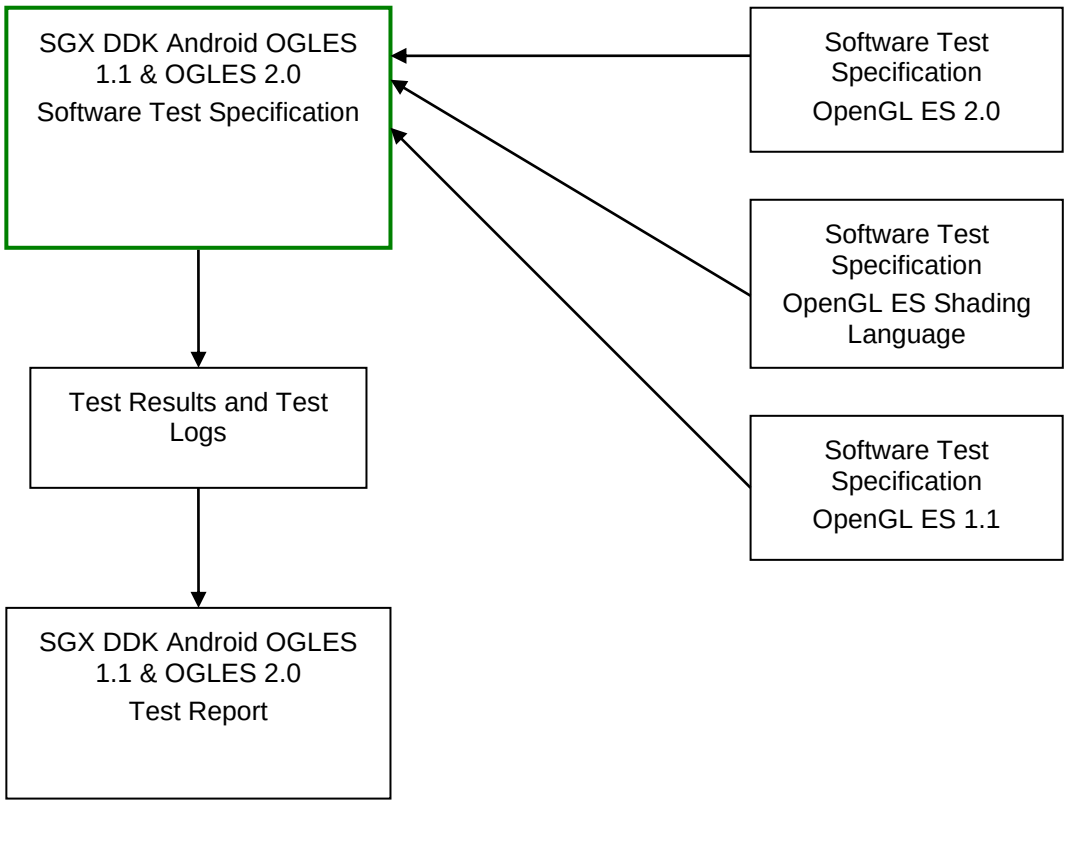

Figure 1: Test Documentation Overview

1.4. Assumptions

This document is written with the following assumptions:

The reader is familiar with OpenGL ES 1.1, OpenGL ES 2.0 and SGX derived hardware.

2. Environment Configuration Options

2.1. Hardware Settings

2.1.1. Reference Platform

The reference platform is the OMAP4430 Blaze (ES2.3 GP).

2.1.2. Platform Setup

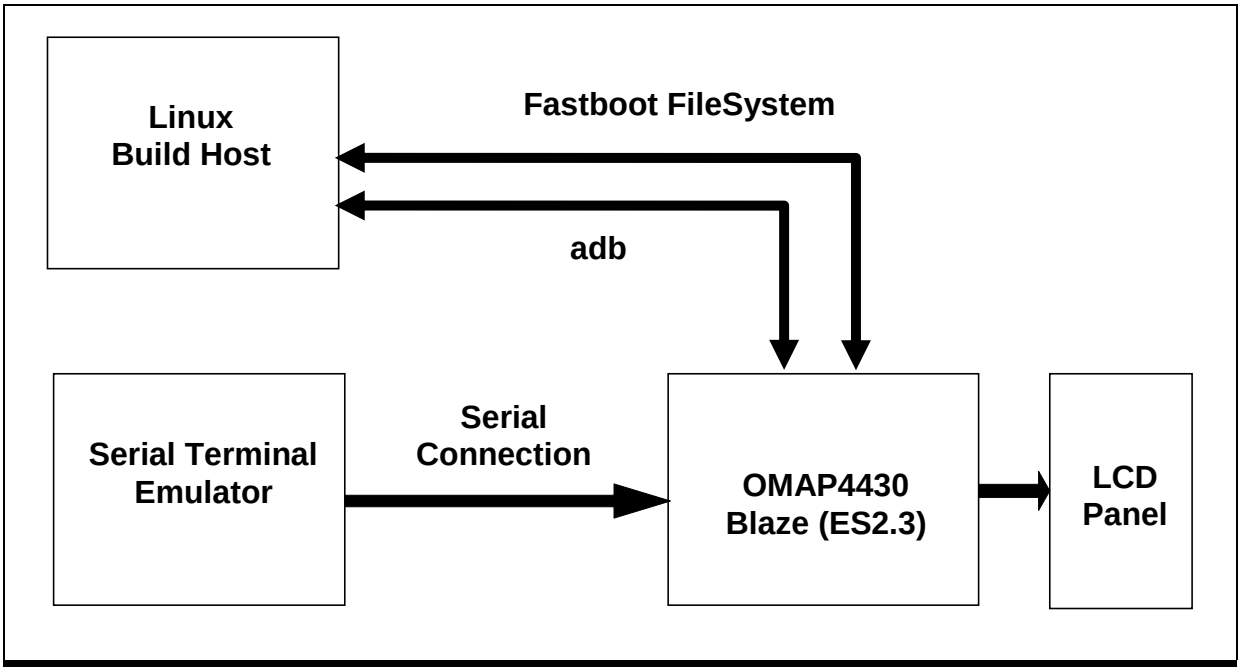

Figure 2 : Reference Platform Setup

The components of the reference platform are illustrated above. The image is transferred from the build host to the Blaze system via a NFS. The Blaze is then controlled via the serial port using a serial terminal emulator running on a desktop PC. Output from the Blaze system is displayed to the integrated LCD panel.

2.2. Software Settings

The table below gives the software settings that will be targeted during SGX testing. The following default values will be used unless otherwise stated:

- Build: Release
- Windowing System: Surface Flinger
- PDump: No
- FSAA: No
- SPM: No

Settings ID	Description	Settings
S01	Default Settings	-
S02	Debug Build	Build: Debug
S03	HW PDump Build	PDump: yes

Settings ID	Description	Settings
S04	Anti-Aliasing 2X	FSAA: 2XAA
S07	Offline Compiler	Build: Offline Compiler
S08	NoHW Pdump Build	Build: NoHW PDump: yes
S10	SPM Testing	SPM: 256 pages (262144 bytes)

3. Test Catalogue

This section describes the specific tests not included in the OpenGL ES 1.1, OpenGL ES 2.0 and OpenGL ES Shading Language Test Specifications.

3.1. Functional Tests

3.1.1. Miscellaneous Tests

ID	Application	Description	Verif.	Source
MISC_FN01	Kill 9 Testing	An application is started and then terminated using “kill -9 [PID]”. An application is started and system_server is terminated using the same method. The system should return to a usable UI in all cases.	M	Platform
MISC_SR01	Multi Context	Two applications (OGLESEvilSkull and OGLES2Skinning) are started at the same time and run for 30 minutes. They are both set up with the default number of pages.	M	IMG
MISC_LW01	Black Hole	Live wallpaper	M	Google
MISC_LW02	Holo Sprial	Live wallpaper	M	Google
MISC_LW03	Nexus	Live wallpaper	M	Google
MISC_LW04	Phase Beam	Live wallpaper	M	Google
MISC_LW05	Water	Live wallpaper	M	Google
MISC_UI01	User interaction – Swipes	- swipe across homepages - swipe Action Bar down/up	M	IMG
MISC_UI02	User interaction – Shortcuts	- create shortcut on homepage - adjust shortcut location - resize shortcut - delete shortcut	M	IMG
MISC_UI03	User interaction – Display Settings	- adjust brightness - change wallpaper - change live wallpaper - adjust font size	M	IMG
MISC_UI04	User interaction – System Bar	- use virtual buttons - go to homepage using “Home” button from gles1test1 - go to gles1test1 using “Recent Apps” button from home - switch between gles1test1 and gles2test2 using “Recent Apps”	M	IMG
MISC_UI05	User interaction – Wakeup	- sleep > wakeup on homepage - sleep > wakeup on gles1test1 - sleep > wakeup on gles2test1	M	IMG

ID	Application	Description	Verif.	Source
MISC_UI06	User interaction – Screen Lock	- unlock using swipe method - unlock using pin method - unlock using pattern method	M	IMG
MISC_UI07	User interaction – Web Browsing	- use google.com - use gmail.com - use youtube.com	M	IMG

3.1.2. Marketplace Tests

All the following tests below are publicly available from the Android Marketplace. Some applications have a one-off cost associated with them.

ID	Application	Description	Verif.	Source
MRKT_GE01	Google Maps	Google Inc application	M	Market
MRKT_GE02	Street View on Google Maps	Google Inc application	M	Market
MRKT_GE03	Google Sky Map	Google Inc application	M	Market
MRKT_GE04	Google Reader	Google Inc application	M	Market
MRKT_GE05	Google Earth	Google Inc application	M	Market
MRKT_GE06	Google Docs	Google Inc application	M	Market
MRKT_GE07	Google Books	Google Inc application	M	Market
MRKT_GE08	Google Voice	Google Inc application	M	Market
MRKT_CT01	Cut the Rope	Third party content	M	Market
MRKT_CT02	Shadowgun	Third party content	M	Market
MRKT_CT03	Great Little War Game	Third party content	M	Market
MRKT_CT04	Doodle Jump	Third party content	M	Market
MRKT_CT05	Worms	Third party content	M	Market
MRKT_CT06	Angry Birds	Third party content	M	Market
MRKT_CT07	Defender	Third party content	M	Market
MRKT_CT08	Drag Racing	Third party content	M	Market
MRKT_CT09	Turkey Blast: Reloaded	Third party content	M	Market
MRKT_CT10	PES (Pro Evolution Soccer) 2012	Third party content	M	Market
MRKT_CT11	World Cruise Story	Third party content	M	Market
MRKT_CT12	Duke Nukem 3D	Third party content	M	Market
MRKT_CT13	Need for Speed: Hot Pursuit	Third party content	M	Market
MRKT_CT14	Sim City Deluxe	Third party content	M	Market
MRKT_CT15	Tap Fish	Third party content	M	Market
MRKT_CT16	Dungeon Defenders: Second Wave	Third party content	M	Market

ID	Application	Description	Verif.	Source
MRKT_CT17	Monster Madness: Grave Danger	Third party content	M	Market
MRKT_CT18	Gun Bros	Third party content	M	Market
MRKT_CT19	Madden NFL 12	Third party content	M	Market
MRKT_CT20	Fruit Ninja	Third party content	M	Market
MRKT_AP01	Beautiful Widgets	Third party application	M	Market
MRKT_AP02	Kindle for Android	Third party application	M	Market
MRKT_AP03	Adobe Photoshop Touch	Third party application	M	Market
MRKT_AP04	Twitter	Third party application	M	Market
MRKT_AP05	Foursquare	Third party application	M	Market
MRKT_PF01	GLBenchmark 2.1	Third party benchmark	M	Market
MRKT_PF02	Vellamo Mobile Web Benchmark	Third party benchmark	M	Market
MRKT_PF03	NenaMark 2	Third party benchmark	M	Market

3.2. Non-functional Tests

ID	Application	Description	Verif.	Source
AND_BD01	Not Applicable	Build the Driver	M	IMG

4. Test Strategy

The following sections define test implementations to be used during Level 1, Level 2 and Level 3 test cycles. Each entry specifies system display mode settings and test collections to be used in that scenario. Test case IDs can refer to tests that are described in the API specific test specifications listed in section 1.1 and those in the Test Catalogue listed in section 3.

4.1. Level 1

Collection ID	Setting ID	Test Case ID	Description
SMO-01	S01	AND_BD01	DDK release build
SMO-02	S01	EGL_FN10 OES2_FN04 OES_FN10	DDK unit tests – Release build
SMO-03	S01	OES_CC01 OES_CC02 OES_CC03 OES_CC04	OpenGL ES 1.1 conformance test coverage
SMO-04	S01	OES2_CC01	OpenGL ES 2.0 conformance test coverage
SMO-12	S07	CMP_FN10	Offline Compiler Test coverage

Collection ID	Setting ID	Test Case ID	Description
SMO-13	S02	AND_BD01	Debug build
SMO-14	S02	EGL_FN10 OES2_FN04 OES_FN10	DDK unit tests – Debug build
SMO-15	S01	OES_SB01 OES_SB02	OpenGL ES 1.1 stability test coverage
SMO-16	S01	OES2_SB01 OES2_SB02	OpenGL ES 2.0 stability test coverage
SMO-20	S01	OES_PF10 OES_PF11 OES_PF12 OES_PF13 OES_PF15 OES_PF16	OpenGL ES 1.1 GridMark3 performance test
SMO-21	S01	OES2_PF10 OES2_PF11 OES2_PF12 OES2_PF13 OES2_PF15 OES2_PF16 OES2_PF17	OpenGL ES 2.0 GridMark3 performance test

4.2. NoHW PDumps

Group ID	Setting ID	Test Case ID	Description
NoHW SGX 520 1.1.1	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 520 NoHW Build and Test coverage
NoHW SGX 530 1.2.0	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 530 NoHW Build and Test coverage
NoHW SGX 530 1.2.1	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 530 NoHW Build and Test coverage
NoHW SGX 530 1.2.5	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 530 NoHW Build and Test coverage
NoHW SGX 530 1.3.0	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 530 NoHW Build and Test coverage

Group ID	Setting ID	Test Case ID	Description
NoHW SGX 531 1.0.1	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 531 NoHW Build and Test coverage
NoHW SGX 531 1.1.0	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 531 NoHW Build and Test coverage
NoHW SGX 531 1.0.1 + SLC	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 531 NoHW Build and Test coverage
NoHW SGX 531 1.1.0 + SLC	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 531 NoHW Build and Test coverage
NoHW SGX 535 1.2.1	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 535 NoHW Build and Test coverage
NoHW SGX 535 1.2.6	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 535 NoHW Build and Test coverage
NoHW SGX 540 1.1.0	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 540 NoHW Build and Test coverage
NoHW SGX 540 1.2.0	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 540 NoHW Build and Test coverage
NoHW SGX 540 1.2.1	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 540 NoHW Build and Test coverage
NoHW SGX 540 1.2.0 + SLC	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 540 NoHW Build and Test coverage
NoHW SGX 540 1.3.0 + SLC	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 540 NoHW Build and Test coverage
NoHW SGX 543 1.4.0 MP2	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 543 NoHW Build and Test coverage
NoHW SGX 543 1.4.0.1 MP2	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 543 NoHW Build and Test coverage
NoHW SGX 543 1.4.1 MP2	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 543 NoHW Build and Test coverage

Group ID	Setting ID	Test Case ID	Description
NoHW SGX 543 1.4.2 MP2	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 543 NoHW Build and Test coverage
NoHW SGX 544 1.1.2	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 544 NoHW Build and Test coverage
NoHW SGX 544 1.1.4 MP1	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 544 NoHW Build and Test coverage
NoHW SGX 544 1.1.5 MP1	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 544 NoHW Build and Test coverage
NoHW SGX 544 1.0.5 MP2	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 544 NoHW Build and Test coverage
NoHW SGX 544 1.1.5 MP2	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 544 NoHW Build and Test coverage
NoHW SGX 544 1.1.6 MP2	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 544 NoHW Build and Test coverage
NoHW SGX 545 1.0.14	S08	AND_BD01 OES2_FN04 OES_FN10	SGX 545 NoHW Build and Test coverage

4.3. Level 2

Collection ID	Setting ID	Test Case ID	Description
REG-01	S01	OES_FN05 OES_FN07 OES_FN15	OpenGL ES 1.1 TDK test coverage
REG-02	S01	OES2_FN02 OES2_FN03	OpenGL ES 2.0 TDK test coverage
REG-03	S01	GES_FN01 GES_FN02 GES_FN04	GLSL ES 2.0 TDK test coverage
REG-10	S03	AND_BD01	PDump build
REG-11	S03	OES2_FN04 OES_FN10	HW PDump test coverage
REG-16	S04	OES2_CT26 OES_CT32	Anti-aliasing 2XAA

Collection ID	Setting ID	Test Case ID	Description
REG-17	S10	OES2_CT26 OES_CT02 OES_CT05 OES_CT06	SPM testing
REG-30	S01	MISC_FN01	Kill 9 Testing
REG-31	S01	MISC_LW01 – MISC_LW05	Android Live Wallpapers
REG-33	S01	MRKT_PF01 – MRKT_PF03	Android Market Performance Applications
REG-34	S01	MISC_UI01 – MISC_UI07	User interaction test coverage

4.4. Level 3

Collection ID	Setting ID	Test Case ID	Description
FULL-01	S01	OES_CT01 - OES_CT33	OpenGL ES 1.1 Content test coverage
FULL-02	S01	OES2_CT01 - OES2_CT39	OpenGL ES 2.0 Content test coverage
FULL-04	S01	OES2_SR04 OES_SR07	Single API Multi context coveage
FULL-05	S01	MISC_SR01	Mixed API Multi context coverage
FULL-09	S01	MRKT_GE01 – MRKT_GE08	Google Inc Applications
FULL-10	S01	MRKT_CT01 – MRKT_CT18	Android Market Content
FULL-11	S01	MRKT_AP01 – MRKT_AP05	Android Market Applications