

# **SGX DDK Android OGLES 1.1 & OGLES 2.0 1.8**

## **RC793010**

### **Test Report**

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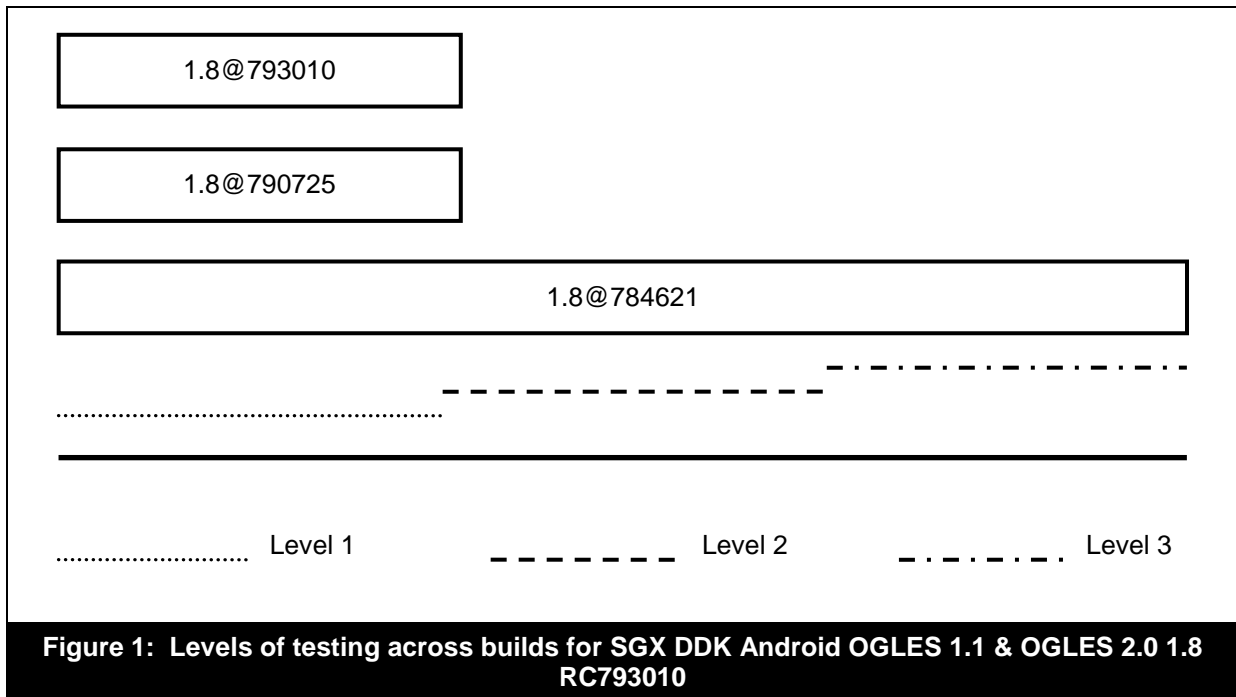
# 1. Introduction

This document describes the testing carried out and the results obtained for the SGX DDK Android OGL ES 1.1 & OGL ES 2.0 1.8 RC793010.

## 1.1. Test Summary

Testing has been carried out on builds: 1.8@784621, 1.8@790725 and 1.8@793010.

The figure below displays the levels of testing across the builds submitted for testing:



## 1.2. Test Configuration

The following SGX platform was used for testing:

- OMAP 4430 Blaze ES2.3 GP (SGX540 1.2.0)

The following NoHW configurations were tested:

- SGX520 1.1.1
- SGX530 1.2.0
- SGX530 1.2.1
- SGX530 1.2.5
- SGX530 1.3.0
- SGX531 1.0.1
- SGX531 1.1.0
- SGX531 1.0.1 + SLC
- SGX531 1.1.0 + SLC
- SGX535 1.2.1
- SGX535 1.2.6
- SGX540 1.1.0
- SGX540 1.2.0

- SGX540 1.2.1
- SGX540 1.2.0 + SLC
- SGX540 1.3.0 + SLC
- SGX543 3.0.2 MP1
- SGX543 3.0.3 MP1
- SGX543 1.4.0 MP2
- SGX543 1.4.0.1 MP2
- SGX543 1.4.1 MP2
- SGX543 1.4.2 MP2
- SGX544 1.1.2
- SGX544 1.1.4 MP1
- SGX544 1.1.5 MP1
- SGX544 1.0.5 MP2
- SGX544 1.1.5 MP2
- SGX544 1.1.6 MP2
- SGX545 1.0.14

The corresponding offline compilers for each of the above core and core revisions were also tested.

## 2. Test Platform

The following platforms were used to test the SGX DDK Android OGLES 1.1 & OGLES 2.0 1.8 RC793010.

Item	Details
Platform	OMAP4430 Blaze MDP ES2.3 GP
SGX Revision	SGX 540 1.2.0
Android Revision	android-4.0.1_r1
Android Kernel Revision	3.0.8-00163

### 2.1. Driver Configuration

The drivers were built and installed as specified in the document “SGX Android OMAP4 Blaze.Platform Guide (1.8 DDK)”.

### 2.2. Software Versions

The following additional software package and versions were used for testing:

Item	Version
PowerVR SDK	2.08.28.0649
PCG TDK	TDK_4_0168
C-Simulator	10.2323
PVR Tools	1.0.10.17

For additional details please refer to the document “SGX DDK Android.Software Test Procedure”.

### 3. Test Plan and Test Procedure

The drivers were tested as specified by the “SGX DDK Android OGLES 1.1 & OGLES 2.0.Software Test Specification”.

The tests were executed as specified by the “SGX DDK Android.Software Test Procedure”.

### 4. Performance results

Please note that a direct comparison between the previous release, 1.7 RC4723, and this 1.8 RC793010 is not applicable, due to a change in the operating system version and platform version.

DDK version	OMAP4430 Blaze SDP version	OS version
1.7 RC4723	ES2.1 (SGX540 1.2.0)	android-2.3.3_r1 (Gingerbread)
1.8 RC793010	ES2.3 GP (SGX540 1.2.0)	android-4.0.1_r1 (Ice Cream Sandwich)

The figures provided are for reference only.

#### 4.1. Performance Caveats

The user should be aware of the following additional performance caveats

- Benchmark results are limited by the operating system to the refresh rate of ~56 fps.
- Comparison shown is between a 1.7.17.4723 DDK on Gingerbread (using composition bypass) and 1.8@790725 DDK on Ice Cream Sandwich (using the HWComposer) both running at 801x480 on the same Blaze ES2.3GP hardware.
- Previous testing on Gingerbread was at a higher resolution of 864x480. As the system was limited to ~56fps, it means that any earlier results show a proportionally higher ‘Mpixels per sec’ value.

#### 4.2. OGLESGridmark3

Test	1.7 RC4723 (Last release)	1.8 RC793010 (This release)	Difference
Bench 0 – Game Scene	56.08 fps	55.72 fps	- 0.64%
Bench 1 – Polygon Throughput	5.089 mtps	5.048 mtps	- 0.81%
Bench 2 – Visible Pixel Fillrate	195.26 mpps	194.14 mpps	- 0.57%
Bench 3 – Depth Test Fillrate	884.8 mpps	879.18 mpps	- 0.64%
Bench 5 – Effective Pixel Fillrate	280.64 mpps	278.76 mpps	- 0.67%
Bench 6 – Lighting	2.289 mpps	2.262 mpps	- 1.18%

#### 4.3. OGLES2Gridmark3

Test	1.7 RC4723 (Last release)	1.8 RC793010 (This release)	Difference
Bench 0 – Game Scene	56.09 fps	55.75 fps	- 0.61%
Bench 1 – Polygon Throughput	13.591 mtps	13.503 mtps	- 0.65%
Bench 2 – Visible Pixel Fillrate	195.12 mpps	194.16 mpps	- 0.49%
Bench 3 – Depth Test Fillrate	884.21 mpps	879.18 mpps	- 0.57%
Bench 5 – Effective Pixel Fillrate	280.48 mpps	278.61 mpps	- 0.67%

Test	1.7 RC4723 (Last release)	1.8 RC793010 (This release)	Difference
Bench 6 – Lighting	2.295 mtps	2.278 mtps	- 0.74%
Bench 7 - Peak Hardware Polygon Throughput	35.896 mtps	35.776 mtps	- 0.33%

## 5. Test Results

### 5.1. Level 1

Group ID	Test Case	Pass/Fail	Comments	BRN
SMO-01 DDK release build	AND_BD01 - Build the Driver	Pass		
SMO-02 DDK unit tests – Release build	EGL_FN10 - eglinfo	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
SMO-03 OpenGL ES 1.1 Conformance test	OES_CC01 - conform	Pass		
	OES_CC02 - Covgl	Pass		
	OES_CC03 - Covegl	Pass		
	OES_CC04 - Primtest	Pass		
SMO-04 OpenGL ES 2.0 Conformance test	OES2_CC01 - GTF	Pass		
SMO-12 Offline Compiler Test Coverage	CMP_FN10 - Offline_Compiler_tester	Fail	DDK issue	BRN35319
SMO-13 Debug Build	AND_BD01 - Build the Driver	Pass		
SMO-14 DDK unit tests – Debug build	EGL_FN10 - eglinfo	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
SMO-15 OpenGL ES 1.1 Stability test coverage	OES_SB02 - Stability Test (content test 8+ hours)	Pass		
SMO-16 OpenGL ES 2.0 Stability test coverage	OES2_SB02 - Stability Test (content test 8+ hours)	Pass		
SMO-20	OES_PF10 - GridMark BenchMark 0	Pass		

Group ID	Test Case	Pass/Fail	Comments	BRN
OpenGL ES 1.1 Gridmark	OES_PF11 - GridMark Benchmark 1	Pass		
	OES_PF12 - GridMark Benchmark 2	Pass		
	OES_PF13 - GridMark Benchmark 3	Pass		
	OES_PF15 - GridMark Benchmark 5	Pass		
	OES_PF16 - GridMark Benchmark 6	Pass		
SMO-21  OpenGL ES 2 Gridmark	OES2_PF10 - OGLES2GridMark3 Bench0	Pass		
	OES2_PF11 - OGLES2GridMark3 Bench1	Pass		
	OES2_PF12 - OGLES2GridMark3 Bench2	Pass		
	OES2_PF13 - OGLES2GridMark3 Bench3	Pass		
	OES2_PF15 - OGLES2GridMark3 Bench5	Pass		
	OES2_PF16 - OGLES2GridMark3 Bench6	Pass		
	OES2_PF17 - OGLES2GridMark3 Bench7	Pass		

## 5.2. NoHW PDump

Group ID	Test Case	Pass/Fail	Comments	BRN
NoHW SGX 520 1.1.1 Test Coverage	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 530 1.2.0 Test Coverage	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 530 1.2.1 Test Coverage	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 530 1.2.5 Test Coverage	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 530 1.3.0 Test Coverage	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 531 1.0.1	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		

Group ID	Test Case	Pass/Fail	Comments	BRN
Test Coverage	OES_FN10 - gles1test1	Pass		
NoHW SGX 531 1.1.0 Test Coverage	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 531 1.0.1 + SLC Test Coverage	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 531 1.1.0 + SLC Test Coverage	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 535 1.2.1 Test Coverage	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 535 1.2.6 Test Coverage	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 540 1.1.0 Test Coverage	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 540 1.2.0 Test Coverage	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 540 1.2.1 Test Coverage	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 540 1.2.0 + SLC Test Coverage	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 540 1.3.0 + SLC Test Coverage	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 543 3.0.2 MP1 Test Coverage	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 543 3.0.3 MP1	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		



Group ID	Test Case	Pass/Fail	Comments	BRN
Test Coverage	OES_FN10 - gles1test1	Pass		
NoHW SGX 543 1.4.0 MP2 Test Coverage	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 543 1.4.0.1 MP2 Test Coverage	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 543 1.4.1 MP2 Test Coverage	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 543 1.4.2 MP2 Test Coverage	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 544 1.1.2	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 544 1.1.4 MP1	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 544 1.1.5 MP1	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 544 1.0.5 MP2	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 544 1.1.5 MP2	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 544 1.1.6 MP2	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
NoHW SGX 545 1.0.14	AND_BD01 - Build the Driver	Pass		
	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		

### 5.3. Level 2

Group ID	Test Case	Pass/Fail	Comments	BRN
REG-01  OpenGL ES 1.1 TDK test coverage	OES_FN05 - Oglresources	Fail	TDK issue – this is under investigation.	BRN33706
	OES_FN06 - glextensions	Fail	TDK issue – this is under investigation.	BRN35270
	OES_FN07 - Matrixpalette	Pass		
	OES_FN15 - ogles1testkit_ext	Pass		
	EGL_FN21 - egl1_4_ogles1	Fail	TDK issue – this is under investigation.	BRN35496
	EGL_FN22 - egl1_4_ogles1_testkit	Fail	TDK issue – this is under investigation.	BRN35744
REG-02  OpenGL ES 2.0 TDK test coverage	OES2_FN02 - OGLES2apitest	Pass		
	OES2_FN03 - OGLES2testkit	Fail	TDK issue – this is under investigation.	BRN34510
	OES2_FN06 - OGLES2extensions	Fail	TDK issue – this is under investigation.	BRN35508
	EGL_FN23 - egl1_4_ogles2	Pass		
REG-03  GLSLES2.0 TDK test coverage	GES_FN01 - GLSLESTriangle	Pass		
	GES_FN02 - GLSLESParser	Fail	DDK issue	BRN35319
	GES_FN04 - GLSLESTestkit	Fail	TDK issue – this is under investigation	BRN35708
REG-10  HW PDump build	AND_BD01 - Build the Driver	Pass		
REG-11  HW PDump test coverage	OES2_FN04 - gles2test1	Pass		
	OES_FN10 - gles1test1	Pass		
REG-16  Anti-aliasing - 2XAA	OES2_CT26 - OGLES2LevelofDetail	Pass		
	OES_CT32 - OGLESCoverflow	Pass		
REG-17  SPM Testing	OES2_CT26 - OGLES2LevelofDetail	Pass		
	OES_CT02 - OGLESEvilSkull	Pass		
	OES_CT05 - OGLESMouse	Pass		
REG-30  Kill 9 Testing	MISC_FN01 – Kill 9 Testing	Pass		

Group ID	Test Case	Pass/Fail	Comments	BRN
REG-31  Android Live Wallpapers	MISC_LW01 – Black Hole	Pass		
	MISC_LW02 – Holo Spiral	Pass		
	MISC_LW03 – Nexus	Pass		
	MISC_LW04 – Phase Beam	Pass		
	MISC_LW05 - Water	Pass		

## 5.4. Level 3

Group ID	Test Case	Pass/Fail	Comments	BRN
FULL-01  OpenGL ES 1.1 Content test coverage	OES_CT02 - OGLESEvilSkull	Pass		
	OES_CT03 - OGLESFiveSpheres	Pass		
	OES_CT04 - OGLESLighting	Pass		
	OES_CT05 - OGLESMouse	Pass		
	OES_CT08 - OGLESPolyBump	Pass		
	OES_CT11 - OGLESSkybox	Pass		
	OES_CT12 - OGLESTrilinear	Pass		
	OES_CT13 - OGLESUserClipPlanes	Pass		
	OES_CT14 - OGLESVase	Pass		
	OES_CT16 - OGLESOptimiseMesh	Pass		
	OES_CT18 - OGLESHelloTriangle	Pass		
	OES_CT19 - OGLESIntroducingPVRShell	Pass		
	OES_CT20 - OGLESTexturing	Pass		
	OES_CT21 - OGLESBasicTnL	Pass		
	OES_CT22 - OGLESIntroducingPVRTools	Pass		
	OES_CT23 - OGLESIntroducingPOD	Pass		
	OES_CT24 - OGLESMultitexture	Pass		
	OES_CT26 - OGLESAlphaBlend	Pass		
	OES_CT29 - OGLESAntialiasedLines	Pass		
	OES_CT31 - OGLESFur	Pass		
	OES_CT32 - OGLESCoverFlow	Pass		
	OES_CT33 - OGLESNavigation	Pass		
FULL-02  OpenGL ES 2.0 Content test coverage	OES2_CT01 - OGLES2Shaders	Pass		
	OES2_CT02 - OGLES2AlphaBlend	Pass		
	OES2_CT03 - OGLES2AlphaTest	Pass		
	OES2_CT04 - OGLES2AnisotropicLighting	Pass		
	OES2_CT05 - OGLES2BasicTnL	Pass		

Group ID	Test Case	Pass/Fail	Comments	BRN
	OES2_CT06 - OGLLES2Bumpmap	Pass		
	OES2_CT07 - OGLLES2CellShading	Pass		
	OES2_CT08 - OGLLES2ComplexLighting	Pass		
	OES2_CT09 - OGLLES2FastTnL	Pass		
	OES2_CT10 - OGLLES2Fog	Pass		
	OES2_CT11 - OGLLES2FresnelReflections	Pass		
	OES2_CT12 - OGLLES2IntroducingPFX	Pass		
	OES2_CT13 - OGLLES2IntroducingPOD	Pass		
	OES2_CT14 - OGLLES2IntroducingPVRShell	Pass		
	OES2_CT15 - OGLLES2IntroducingPVRTools	Pass		
	OES2_CT16 - OGLLES2Iridescence	Pass		
	OES2_CT17 - OGLLES2LightMap	Pass		
	OES2_CT18 - OGLLES2PerturbedUvs	Pass		
	OES2_CT19 - OGLLES2Reflections	Pass		
	OES2_CT20 - OGLLES2Refractions	Pass		
	OES2_CT21 - OGLLES2RenderToTexture	Pass		
	OES2_CT22 - OGLLES2StencilBuffer	Pass		
	OES2_CT23 - OGLLES2Texturing	Pass		
	OES2_CT24 - OGLLES2SkyBox2	Pass		
	OES2_CT25 - OGLLES2Skinning	Pass		
	OES2_CT26 - OGLLES2LevelOfDetail	Pass		
	OES2_CT27 - OGLLES2ShadowVolume	Pass		
	OES2_CT28 - OGLLES2HelloTriangle	Pass		
	OES2_CT30 - OGLLES2Bloom	Pass		
	OES2_CT31 - OGLLES2ChameleonMan	Pass		
	OES2_CT32 - OGLLES2CoverFlow	Pass		
	OES2_CT33 - OGLLES2DisplacementMap	Pass		
	OES2_CT34 - OGLLES2FilmTV	Pass		
	OES2_CT35 - OGLLES2PhantomMask	Pass		
	OES2_CT36 - OGLLES2ShadowMapping	Pass		
	OES2_CT37 - OGLLES2Water	Pass		
	OES2_CT38 - OGLLES2Fractal	Pass		

Group ID	Test Case	Pass/Fail	Comments	BRN
	OES2_CT39 - OGLLES2Navigation	Pass		
	OES2_CT40 - OGLLES2Navigation3D	Pass		
	OES2_CT41 - OGLLES2EdgeDetection	Pass		
FULL-04  Single API Multi context coverage	OES2_SR04 - Multi Context	Fail	SDK Issue - Android JNI SDK scaling the image instead of window with command line options	BRN33579
	OES_SR07 - Multi Context	Fail	SDK Issue	BRN33579
FULL-05  Mixed API Multi context coverage	MISC_SR01 - Multi Context	Fail	SDK Issue	BRN33579

## 6. Defect List

For more details on each DDK BRN, please refer to the "SGX DDK Android OGLLES 1.1 & OGLLES 2.0 1.8 RC793010.Release Notes".