

Rockchip Linux Benchmark KPI

ID: RK-CS-YF-375

Release Version: V1.2.0

Release Date: 2023-04-13

Security Level: ☐Top-Secret ☐Secret ☐Internal ☒Public

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Preface

Overview

This document provides an overview of some data references for Linux benchmark testing. Intended to assist customers in referencing and comparing during the secondary development process.

Intended Audience

This document is mainly intended for:

Technical support engineers

Software development engineers

Support benchmarks

name	test items	summary
glmark2	gpu	OpenGL 2.0 and ES 2.0 benchmark
unixBench	cpu/mem/io/system	overall performance test

Revision History

Date	Version	Author	Revision History
2020-08-05	V1.0.0	Caesar Wang	Initial version
2021-04-01	V1.1.0	Caesar Wang	Add RK3566、RK3568 KPI
2023-04-13	V1.2.0	Caesar Wang	Add RK3562、RK3588 KPI

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1. Test environment description

1.1 SDK kit

Configuration	Description
Board	Rockchip EVB Development Board
SDK	Tag: linux-5.10-gen-rkr4

1.2 Operating instructions

System Settings Performance Mode

```
echo performance | tee $(find /sys/ -name *governor) /dev/null || true
```

1.2.1 Glmark2 test

Run the following command for testing::

```
/rockchip-test/gpu/gpu_test.sh
```

1.2.2 UnixBench test

Run the following command for testing::

```
/opt/unixbench/Run
```

2. Buildroot OS

2.1 Glmark2

[glmark2](#) is an OpenGL 2.0 and ES 2.0 benchmark.

The scores of Glmark2's fullscreen and offscreen mode of each chip are shown in the table below:

Item	RK3588	RK3562	RK3568	RK3566	RK3399/RK33899Pro	RK3326/PX30	RK3288
Normal Screen (800x600)	4851	676	560	485	812	369	57
Off Screen	3550	644	596	531	687	419	604
Full Screen	2780	287	240	224	183	253	52
GPU Type	Valhall-G610	Mali-G52	Mali-G52	Mali-G52	Mali-T864	Mali-G31	Mali-T764
Screen resolution	1080x1920	1080x1920	1080x1920	1080x1920	1536x2048	720x1280	1536x2048

2.2 UnixBench

The purpose of [UnixBench](#) is to provide a basic indicator of the performance of a Unix-like system; hence, multiple tests are used to test various aspects of the system's performance.

The reference scores of test items for each chip are as follows:

- the performance of your system when running a single task

Item	RK3399/RK3399Pro	RK3288	RK3326/PX30	RK3566	RK3568	RK3562	RK3588
Dhrystone 2 using register variables	19191210.4	10626086.6	5704897.1	12332588.0	13176039.3	10821835.3	34493007.3
Double-Precision Whetstone	3303.5	1718.9	1565.2	2965.9	3164.5	2464.3	6665.4
Execl Throughput	2730.8	1538.1	787.9	1483.6	1703.0	1815.3	5695.8
File Copy 1024 bufsize 2000 maxblocks	263262.3	163001.5	125333.2	166135.4	175490.6	247437.6	832875.7
File Copy 256 bufsize 500 maxblocks	98335.8	50635.1	37871.9	48956.5	51574.7	74740.7	253871.4
File Copy 4096 bufsize 8000 maxblocks	677993.2	384632.9	321189.7	440209.9	461129.3	610768.8	1831983.9
Pipe Throughput	775302.3	357578.5	300305.5	521804.1	557997.0	619105.4	1644863.6
Pipe-based Context Switching	87345.3	54247.5	37434.5	51766.2	53873.8	61437.0	217180.2
Process Creation	4274.2	3512.1	2086.0	3782.4	4041.7	5113.1	5272.1
Shell Scripts (1 concurrent)	2944.0	2973.3	1474.2	2352.0	2817.2	2301.5	3254.2
Shell Scripts (8 concurrent)	832.4	703.2	431.7	567.3	675.6	647.6	2092.6
System Call Overhead	721899.8	624614.1	568868.6	783414.7	836985.7	838824.4	1322359.7
System Benchmarks Index Score	654.7	421.7	290.6	456.9	497.3	533.3	1342.5

- the performance of your system when running multiple tasks

Item	RK3399/RK3399Pro	RK3288	RK3326/PX30	RK3566	RK3568	RK3562	RK3588
Dhrystone 2 using register variables	61892645.4	41527276.3	22821903.2	47931915.4	51737187.8	42342893.2	182453805.7
Double-Precision Whetstone	13192.2	6870.1	6265.7	11545.6	12431.5	9699.1	38815.5
Execl Throughput	6638.9	4127.0	2449.4	3272.1	3951.1	4359.4	23542.0
File Copy 1024 bufsize 2000 maxblocks	253903.6	265838.2	194293.5	236042.5	246968.0	436766.8	681901.0
File Copy 256 bufsize 500 maxblocks	74647.0	74156.4	54107.4	65182.9	67873.4	117806.2	189411.0
File Copy 4096 bufsize 8000 maxblocks	715699.5	709343.4	565091.8	639035.4	700693.2	1285002.9	1873825.2
Pipe Throughput	3159789.0	1323176.0	1191104.7	2031168.7	2191846.5	2427332.4	8951711.8
Pipe-based Context Switching	298324.6	134686.9	154652.2	202912.5	212649.7	306251.1	1148297.7
Process Creation	11834.7	7412.8	5183.1	7036.5	7932.7	10979.8	44316.5
Shell Scripts (1 concurrent)	7420.0	5710.9	3587.9	4613.8	5473.0	5027.4	24379.9
Shell Scripts (8 concurrent)	952.5	744.6	477.4	593.1	707.7	688.4	3455.2
System Call Overhead	2514699.7	2392234.7	2206337.3	2815382.8	3028273.6	3152888.0	3030469.3
System Benchmarks Index Score	1402.8	989.5	746.4	1039.1	1146.5	1365.4	4036.2