Performance based Graphics Engine for Smartphones

Ms. V.Susmitha [1]
Student

Mr. G.Uday Kiran [2]
Assistant Professor

Mrs. D.Jyothirmai [3]
Assistant Professor

Computer Science & Engineering Department
Padmasri Dr. B.V. Raju Institute of Technology
Vishnupur, Narsapur, Hyderabad, Andhra Pradesh, India.

Abstract

Performance based Graphics Engine is a chip which is embedded in the graphic card chip of the smartphone device. It also takes the ultimate mobile performance beyond with the high end graphics cards which are specially designed for 5 inches phablets and smartphones. The high end graphics engine supports all the compatible processors in all the various intermediate level or high end smartphone devices. It gives the extreme gaming and smooth multitasking with the high graphic gamings. It gives an ultra-smooth video streaming, smooth web browsing, smooth gaming that's up to the twice as fast as the other high end graphic engines. The gaming console quality in the video is very high compared to the other entry –level based graphic engines. The best battery saving technology is enabled for the graphics engines that even it is able to play the High Definition videos and it has HD capabilities for the excellent and the brilliant graphics on the go.

1. Introduction

The performance based graphic chips for smartphones are built in with the powerful modern tablets, phablets and the high-end smartphones. The ARM and NVidia vendors have already started building high-end performance based graphics chips for devices such as smartphones, tablets etc. Its low power battery saving technology chips which also runs in the majority of the tablets, smartphone and handheld devices, but many vendors believes that it has the more better technology in the different shape of upcoming Graphic Engines integrated in the graphics Card and it is also associated with the system on chip implementation on the graphics card of smartphones.

By enabling the full Profile based solution for the entry level graphic chips (GPUs) that compute and support for the smartphone or mobile markets. It also brings the 60% of the energy & efficiency in order to make the improvements for the third generation GPU's and graphic engines. It also supports the high graphics rendering in order to compute the smartphones by allowing its increased efficiency go the graphics processing to compute the various functions such as the computational graphics and the smartphone vision. Performance based graphics engine is mainly designed for the visual computing in the smartphone and also by using the innovative tri pipe architectures in the GPU's.

The GPU compute the perfect solution for the various builds upon the various track records for the high quality for good resolution and it is also scalable for the multicore graphic solutions for the 2D rendering graphics and the 3D rendering graphics in the chip. The custom keys and the APIs are also supported in the graphics and graphic drivers and groups such as the OpenGL, DirectX, etc.

The performance based graphic engine also scales it from one to two cores in the GPU, where it is the perfect embedded graphics on the chip and the GPU may also Compute and boost the GPU acceleration in any platform and it also

enables the development of graphic applications of the intermediate and the advanced user interfaces for the gaming capabilities that the GPU also Compute the graphic based mobile applications in wide range.

The pipelines of the GPU provides the double precision, the floating point math in the graphics card hardware for the embedded and also for the full Profile with the OpenGL support for GPU. The Production quality of the GPU application support via the single driver which supports the stack for all the multi-cores for the GPU configurations for its better graphics, it also provides the simplified mobile and graphics based applications for porting the system maintenance & its integration. The multi-core scheduling for the performance based graphics scaling for the full handled graphics system, with the help of the special considerations for the required graphic pattern rendering by the graphics application developer.

2. GPU Requirements

- Standalone Graphics Card for smartphones
- Graphic Engine with minimum 600MHZ Clock Speed
- Clear video and HD clear video rendering technology based integrated chip
- Graphic Card Emulator and Graphics Emulator
- 2D & 3D rendering checking tool
- Graphic Compatible Drivers for the Graphics engine chip which competes the rendering
- Graphic rate flow checking tool such as Graphics bench marking tool which can run on the smartphone such as Benchmark tool and the Nenamark tool and AnTutu tool etc.

3. GPU – Graphics Engine Capabilities

The most of the performance based GPUs from the offloads to the task management for all the CPU to the performance based graphic GPU and that also enables the seamless of the workload balancing for the active multi cores in the GPU chip.

Through Graphic Engine coherency and the interconnect technology of the GPU that also compute the various tasks which can conveniently can span CPU and the GPU or the other available computational resources that can be done by accessing the data with the more efficiently during the shared processing of the graphic engines.

The minimum recommendation with the dual-core CPUs supports the faster Web browsing, faster graphics, smoother graphics and the fast responsive time. The core integrated GPU is the first mobile Graphics Engine with the out of order execution which is performed in the excellent and efficient GPU processing system that results in a better and ultimate overall the experience.

The ultra-low power and battery saver for the Graphics Engine for the GPU which is architected and designed for the low power and battery saver applications.

The low power GPUs which also delivers the outstanding and the performance game playability in the smartphone device and it also the visually engaged that which is high responsive for both the developer and the user interface in the graphic chip architecture design system. It also supports the 1080p videos and gpu is also supported by the Smartphone processor, it helps users in watching and recording the full 1080p HD videos on the move with the high clarity in smartphone devices. When they also supports the wide varieties of the application codecs and the various multiple formats which also delivers the superior and the high compatibility of the existing system and elimination of the need of the transcoding.
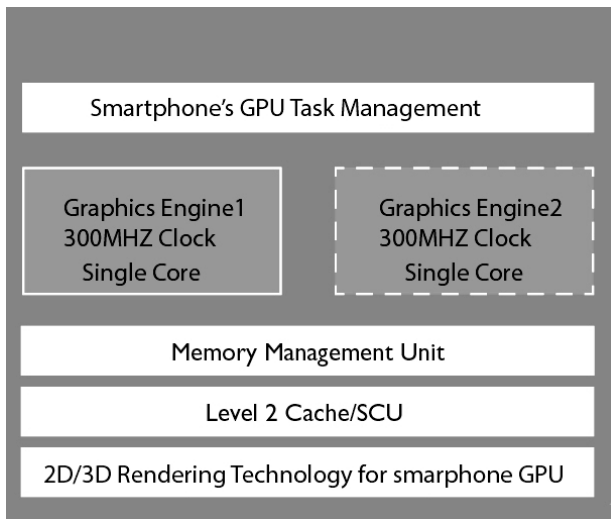
4. Architecture

Figure: 1 Architecture – Graphic Engine

5. Features

- **Performance**

The performance based Graphics Processing Units and the graphic engines enables the integration of the video solution to the various industries including the leading companies and manufacturers and is also scalable and compatible with the graphics IP which it drives the excellent and clear visual experience to the smartphone user.

This also includes and integrates with the wide range of the smartphone devices and its graphic units which is scalable for the entry market of smartphones, which is visually stunningly enabled with the high performance graphics for the smartphones in the current market.

Graphics Integration

- The Number of GPUs found in the graphic enabled Smartphone.

- The Number of cores in the Smartphone GPU Units.

- In over the 30% of the Graphic Engine for the smartphones.

- Over the 200M for the GPUs or Graphic Engines.

- Multi Core GPUs is found over the 300 smartphone devices in terms of performance.

Graphics Engine Computation

The Graphics engine with the smartphone GPU that can compute and also provides the premium graphics with the ultimate solutions for the high end smartphone devices. The graphics engine performance capable of handling the current product which is higher than the Graphics on only the roadmap where the Graphics Engine with the GPU Compute the Midgard and the Tri pipe architectures.

- **Clear Video Technology Solution**

The clear video solution presents the wide broad range of the performance capabilities with the combined with the integrated system wide range and to the graphics engine performance & its security.

It has been developed by the graphics engine which allows the increasingly with the more complex graphics engine within the graphics chip capacity and the limit of the smartphones devices. Both the formats is required to provide the significant system with the wide bandwidth with the help of reductions to ensure that the smartphone end users is able to experience with the integrated graphics engine quality device.

The graphics engine and adaptivity and scalability with the rendering texture compression which is available on all the third generation which enables the buffer frame with the compression is available which integrates with the Graphics video Engine which is licensable IP for all the displayed graphic engine controllers.

Graphics engine in the consumer smartphone devices which have the wide range of long way. By making the devices with more easier to use the consumers in the one of the graphics engine and the key that motivates for the end devices with various manufacturers or vendors to integrate the advanced graphics technologies. It is now very much easy to use the user interfaces and is smoother for graphics with the faster graphical web browsing, new ways to play the performance based games and to highly improve

the accessibility functionality in the smartphone device.

- It is integrated with adaptability, Scalability and Texture Compressions enabled.

- The lower dynamic range is enabled and the higher dynamic range is also enabled. It also supports the both 2D, 3D videos, textures and images rendering.

- It also supports with the built-in memory for the memory management in GPU Unit in order to support the virtual memory.

- Smartphones is having compatibility with the huge wide range of GPUs and graphic engines with the bus which are interconnected with the peripheral IPs.

- It also offers the number of advantages of the graphics engine with the existing texture compression for various multiple schemes that also improves the image quality and image frame quality by reducing the graphics memory with the limited bandwidth.

- Integrated with the full support for the fourth generation and the upcoming next generation with the legacy support for the both 2D and 3D graphics based applications.

- There will be no performance drop in the graphics play.

6. Conclusion

The Performance based Graphics Engine for Smartphones is the integrated performance series based graphics chip which is specially designed and manufactured for the intermediate level and high end smartphones which are compatible with the dual-core processors and its graphics renders and runs very smoothly on quad-core supported processors. Its graphics integration enables clear video technology and High Definition (HD) video technology for smartphone to run high frame rate frames on the smartphone, it also enables the multi-codecs to run the high clarity videos.

It has the integration of the single battery saver core that enables the low power consumption for performing the multimedia tasks with active standby such as high clarity videos, High clarity games and other high end graphic applications.

We here by conclude that Performance based Graphics Engine for Smartphones is useful for the high end gaming performances on the high end smartphones. It can be shipped with the phablets, netbooks and especially the high end smartphones for ultimate performance in terms of gaming experience. The performance of graphics engine can be improved the quad-core processors and performance can be rated. It will give the better visual experience with the ultimate graphics based HD gaming experience to the performance based smartphone users.

References

[1] Muhammad Mobeen Movania, Feng Lin, Wei Ming Chiew, "On-Site Volume Rendering with GPU-Enabled Devices" Sep 2013.
[2] Henry B. L. Duh, Jian Gu, " Mobile Augmented Reality Game Engine" published in 2011, pp 99-122.
[3] Springer Publications, "Mobile Graphics Applications" 2006, pp 3-28.