

Handheld Pixels

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Abstract

During this decade, pixels have become mobile. Cell phones, PDAs, handheld gaming consoles and other similar devices start to have color displays by standard and color displays are hungry for high-quality graphics. QVGA and VGA display resolutions are common, requiring dedicated hardware for graphics acceleration. Color displays and open platforms also invite games and other applications, which build on the availability of robust graphics.

Handheld graphics acceleration is close to its desktop and games console counterparts – with content running on an embedded version of OpenGL, the OpenGL ES 2.0, vertex and pixel shaders are a requirement. Floating-point accuracy, lots of texture surfaces, plenty of performance – handheld pixels are of good quality and there are lots of them. Handheld gaming drives the handheld 3D graphics performance, but unlike on desktops, vector graphics hardware acceleration will become an even widely spread requirement on new handheld platforms. Applications such as the device’s main graphical user interface and interactive maps are driving these requirements. In addition to performance, a strong driver for vector graphics on handhelds is image quality.

The first handheld devices, including cell phones, with dedicated 3D graphics accelerators have already hit the market. By 2010, a large number of new cell phones and PDAs will be enabled with hardware vector- and 3D graphics acceleration. The volume of graphics acceleration enabled silicon chips shipping for handheld devices is expected to be significantly higher than for desktop PCs and gaming consoles. This creates a lucrative platform for game and application developers who want to develop handheld content with high-quality graphics.

As there are numerous different handheld devices, the industry is fighting against fragmentation – widely adopted platforms must be created to enable universal content development across a wide range of platforms and end devices – the platform race is already on.

All in all, the industry is busy creating all the essential components to bring high-quality programmable pixels to handheld devices. Content developers are already up-to speed to provide winning content for these devices. All in all, the future of handheld pixels looks rosy!
