

Qualcomm Introduces Snapdragon 835 Virtual Reality Development Kit

-- Unleashing the Full Potential of the Qualcomm Snapdragon 835 Mobile Platform for Designed Developers to Create Immersive VR Experiences--

SAN FRANCISCO, Feb. 23, 2017 /PRNewswire/ -- Today, Qualcomm Incorporated (NASDAQ: QCOM) announced that its subsidiary, Qualcomm Technologies, Inc., has introduced a new virtual reality development kit (VRDK) for the Qualcomm® Snapdragon™ 835 mobile platform. The new Snapdragon VRDK gives developers early access to a VR head mounted display (HMD) built with the Snapdragon 835 mobile platform that is supported by an upgraded VR software development kit (SDK) that works with the HMD.

"With this new VRDK, we're providing virtual reality application developers with advanced tools and technologies to accelerate a new generation of VR games, 360-degree VR videos and a variety of interactive education, enterprise, healthcare and entertainment applications," said Cristiano Amon, executive vice president, Qualcomm Technologies, Inc., and president, QCT. "We see great potential for the exciting new experiences made possible by truly mobile, untethered virtual reality that's always connected to the internet, and we're excited to help mobile VR developers more efficiently deliver compelling and high-quality experiences on upcoming Snapdragon 835 VR-capable products."

The next generation of mobile virtual reality applications will be increasingly complex, with extreme power consumption constraints and challenging performance requirements that must be met in order for the VR applications to become truly immersive. Advanced heterogeneous mobile platforms like the Snapdragon 835 are capable of supporting immersive VR experiences in standalone head mounted displays (HMDs) that require neither fans nor cables.

The HMD included in the Snapdragon 835 VRDK consists of:

- **Display:** Four megapixel (2560x1440) WQHD AMOLED display (two megapixels per eye)
- **Cameras:** Six degrees of freedom (6DoF) Motion Tracking:
 - Two monochromatic, stereo- one mega pixel (1280x800) cameras with fish-eye lenses for each
 - integrated sensor IMU (gyroscope, accelerometer, magnetic compass), with fast interface to the Snapdragon 835 mobile platform sensor core
- **Eye Tracking:** Two monochromatic VGA global shutter cameras with active depth sensing
- **Memory:** DRAM: 4GB LPDDR4 and Flash: 64GB UFS
- **Connectivity:** Wireless with Wi-Fi, Bluetooth and USB3.1 type C (power)
- **Audio:** Integrated Qualcomm Aqstic™ audio codec (WCD9335)
- **I/O:** Trackpad on right side of HMD

Technologies that are crucial for an optimal VR user experience will also be supported in the software development kit portion of the VRDK. These include:

- **DSP sensor fusion:** Utilizing the full breadth of technologies built into Snapdragon 835, the new SDK helps allow developers to create more responsive and immersive experiences with six degrees of freedom (6DoF) by easily accessing the right combination of camera positional data along with high frequency inertial data from gyroscopes and accelerometers via the Snapdragon Sensor Core and predictive head position processing with the Qualcomm® Hexagon™ DSP
- **Foveated rendering:** Designed to provide enablement of a rendering technique useful

for VR that senses the user's gaze direction and then focuses on processing the maximum visual detail only in the region of interest, via new Snapdragon plugin support for both Unity and Epic Game Engines

- **Fast motion to photon:** Supports improved asynchronous time warp with single buffer rendering and other techniques for fast transformation of rendered images in 3D space, which can help reduce latency by roughly 20% when compared to with previous Snapdragon products
- **Stereoscopic rendering with lens correction:** Supports 3D binocular vision with color correction and barrel distortion for improved visual quality of graphics and video, enhancing the overall VR experience
- **VR layering:** Generation of menus, text, and other overlays so that they render correctly in a virtual world, reducing distortions that would otherwise make them difficult to read
- **Advanced Application Profiling and Power management** Integration with Snapdragon Profiler and the Qualcomm® Symphony System Manager SDK to provide application developers with greater visibility into the VR processing pipeline, along with cohesive CPU, GPU, and DSP power and performance management to help achieve stable frame rates for VR applications running in low-power, thermally-constrained devices

The VRDK is expected to be available in the second quarter of 2017 through the [Qualcomm Developer Network](#) and it is engineered to help developers attain improved VR performance and power efficiency for upcoming VR OEM devices built with the Snapdragon 835 that are expected to ship in the second half of 2017.

About Qualcomm

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