Qualcomm

Qualcomm Snapdragon 845 Mobile VR Platform - Fact Sheet

- **XR:** "Xtended Reality" is an umbrella term for virtual reality (VR) and augmented reality (AR) technologies which are, in conjunction, becoming an emerging market within the technology industry.
    - Market
        - $108 billion market by 2021 – Techcrunch.com
        - Qualcomm has launched more than 20 XR devices, mixture of standalone HMDs and XR-capable smartphones in collaboration with:
            - Google
            - HTC Vive
            - Oculus
- **Adreno 630:** Qualcomm's new GPU introduced at the Second Annual Snapdragon Tech Summit in December 2017. The Adreno 630 visual processing subsystem immerses XR users into virtual worlds via:
    - **Room-scale 6-DoF**: tracks user movement via cameras and sensors inside the head-mounted display. Unlike its predecessor 3-DoF where the user can only watch, 6-DoF offers a fully-immersive XR experience where users can become a part of the story and interact with it.
    - **SLAM:** Simultaneous Localization and Mapping, maps and detects obstacles in the user's physical world's path. SLAM allows XR users to understand the room's sized, scan for objects in the room to avoid them, and integrate real-world objects into the virtual world.
        - Delivers up to 4 million pixels per eye
        - Managed across several heterogeneous engines, including:
            - Qualcomm Spectra 280 ISP
            - Qualcomm Hexagon DSP
            - Qualcomm Kryo 385 CPU
    - **Power efficiency**
        - 30% faster graphics performance
        - 30% better power efficiency

        - More than 2X display throughput (**compared to previous generation*)
    - **Adreno Foveation:** A digital image processing technique that reduces power consumption, boosts XR application performance, and improves visual quality I the small fovea region of the eye.
        - Renders objects with progressively less detail outside the fovea region while rendering objects within the fovea's field of view with much greater detail.
- **DSP:** A digital signal processor is a specialized microprocessor with architecture optimized for the operational needs of digital signal processing. DSPs measure, filter or compress continuous real-world analog signals.
    - **Dedicated DSP:** While most general microprocessors can process digital signals successfully, dedicated DSPs usually have better power efficiency, making them more suitable in portable devices such as mobile phones.

**DoF = Degrees of Freedom*
**HMD = Head Mounted Display*