Making XR a reality for everyone

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XR is the next mobile computing platform
XR will serve a broad spectrum of roles in daily life, reach critical mass and go mainstream.
Standalone devices are helping to make this happen

- Oculus Go
- Lenovo Mirage Solo w/Daydream
- HTC VIVE Focus
- ODG R9
- Shadow Creator

A new category of devices has arrived
186 Million

Standalone AR + VR Install Base by 2023

Source: IDC, ABI Research, Qualcomm Technologies
Consumers want convenience, comfort and affordability

45%
Too expensive
Top reason for not buying AR/VR device

46%
Prefer a standalone device
Higher-resolution screens are most desired feature

Source: The reality of AR and VR survey: Technalysis Research
The quality of XR experiences is key

Cheap VR goggles

- Low quality experiences that give XR a bad name

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Cheap VR goggles

- Quality standalone XR experiences at an affordable price for mainstream users

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High quality

PC tethered

- For tech aficionados at high price point and cumbersome setup

$$$$

Premium quality

The quality of XR experiences is key
Low quality experiences that give XR a bad name

For tech aficionados at high price point and cumbersome setup

Standalone XR devices offer options for consumers

High quality

- 3DoF
- Lean back and 360 viewing
- Simple controllers

High quality

- 6DoF
- Room scale tracking and positioning
- Ultrasonic controllers and hand tracking

Premium quality
The first dedicated XR platform

High quality XR experiences for mainstream audiences
Heterogenous Compute

Specially designed just for XR
Watch

Lean back and enjoy movies, videos and sports

#SnapdragonXR1
Play

Interact in game environments
Capture

Capture moments worth saving

#SnapdragonXR1
Share

Share your experience as it’s happening

• “See what I see”
An XR platform needs to address technology demands to enable high quality XR experiences.
Immersion highlights

Get full immersion with low power and thermals that allow for sleek, lightweight and stylish headworn designs

- **4K UltraHD Premium video playback**
- **Adreno GPU** Fast graphics rendering at low power
- **Kryo CPU**
- **6DoF head tracking**
- **Qualcomm Aqstic and Qualcomm aptX audio**
- **Qualcomm Aqstic voice UI**
- **QHD+ (2K) display**
- **3DoF / 6DoF controllers**

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Qualcomm aptX and Aqstic are products of Qualcomm Technologies, Inc. and/or its subsidiaries.
Visually
Pixels so realistic they are indistinguishable from the real world

- Ultra HD premium video and display (up to 4K60 video w/ audio)
- Jitter reduction
- Fast graphics rendering at lower power and reduced memory bandwidth
- OLED support for wide color gamut, and amazing contrast
Audio

Audio input/voice input
True-to-life sound is critical to immersive experiences

The sounds and visuals must match—depth, direction, and magnitude of sound sources

- Support Object and Scene based audio as well as Audiophile-grade DSD audio
- Improved quality high fidelity sound w/ Qualcomm Aqstic and pre-integrated aptX & aptX HD audio
- Low latency Immersive Audio supported using a 3D Audio SDK (Object-based audio, Ambisonics (HOA), HRTF and Reverb)
- Active noise cancellation
Voice is a natural way to interact with devices

A hands-free interface is necessary in certain situations

- Voice activation
- Noise filtering, suppression, and cancellation
- Speech recognition
- Natural language processing
- Voice biometrics
- Deep learning

“Show me diagram and location to insert cord”
Intuitive Interactions
Natural user interfaces with minimal latency and precise head motion tracking

- VIO Head Tracking
- Motion to Photon latency less than 20ms
- DSP Sensor Fusion
- Support for 3DoF as well as 6DoF controllers
Artificial Intelligence
On-device intelligence for XR
XR1 heterogeneous computing key for on-device intelligence

Hardware
- Hexagon Vector Processor
  - INT8 precision networks
- Adreno GPU
  - FP32 and FP16 precision networks
- Kryo CPU
  - FP32 and INT8 8bit precision networks

Tools
- Snapdragon Neural Processing SDK
- Android NN
- Hexagon NN

Frameworks
- Caffe/Caffe2
- TensorFlow/TensorFlow Lite
- ONNX

Applications
- Object classification
- Pose prediction
- Natural language understanding
- Speaker recognition

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Coming Soon
Qualcomm Snapdragon
XR1 platform

Meta  Pico  VIVE  Vuzix
Making XR a reality for everyone

Watch

Play

Capture

Share

Qualcomm® Snapdragon™ XR1 platform

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