

AnDevCon Snapdragon Development Tools

QUALCOMM®



Large and Growing Installed Base For Developers



Snapdragon processors in leading devices

1B+

Android Smartphones
with Snapdragon

1080+

Devices Announced or
Commercially Available FY14

825+

Designs in
Development

85+

Manufacturers
Shipping



Snapdragon Based Devices Across All Tiers



HTC One M9
(SD 810)



LG G Flex2
(SD 810)



Samsung
Galaxy Note Edge
(SD 805)



Sony Xperia Z3
(SD 801)



ZTE Nubia Z7
(SD 801)



Xiaomi Mi4
(SD 801)



Samsung
Note 4
(SD 805)



LG G Watch R (SD
400)



Razer Forge TV
(SD 805)



Amazon Fire TV
(SD 600)



Amazon Kindle
Fire HDX 8.9 2014
(SD 805)



LG G4
(SD 808)



LG Nexus 5
(SD 600)



Nokia Lumia 635
(SD 400)



Lenovo Vibe Z2
(SD 410)



Samsung Galaxy
Grand 2
(SD 400)



Alcatel OneTouch
Fierce 2
(SD 200)



Motorola
Nexus 6
(SD 805)



Samsung Galaxy
Tab S 10.5 LTE
(SD 800)



Samsung Gear VR
Glasses



ODG R-7 Glasses
(SD 805)

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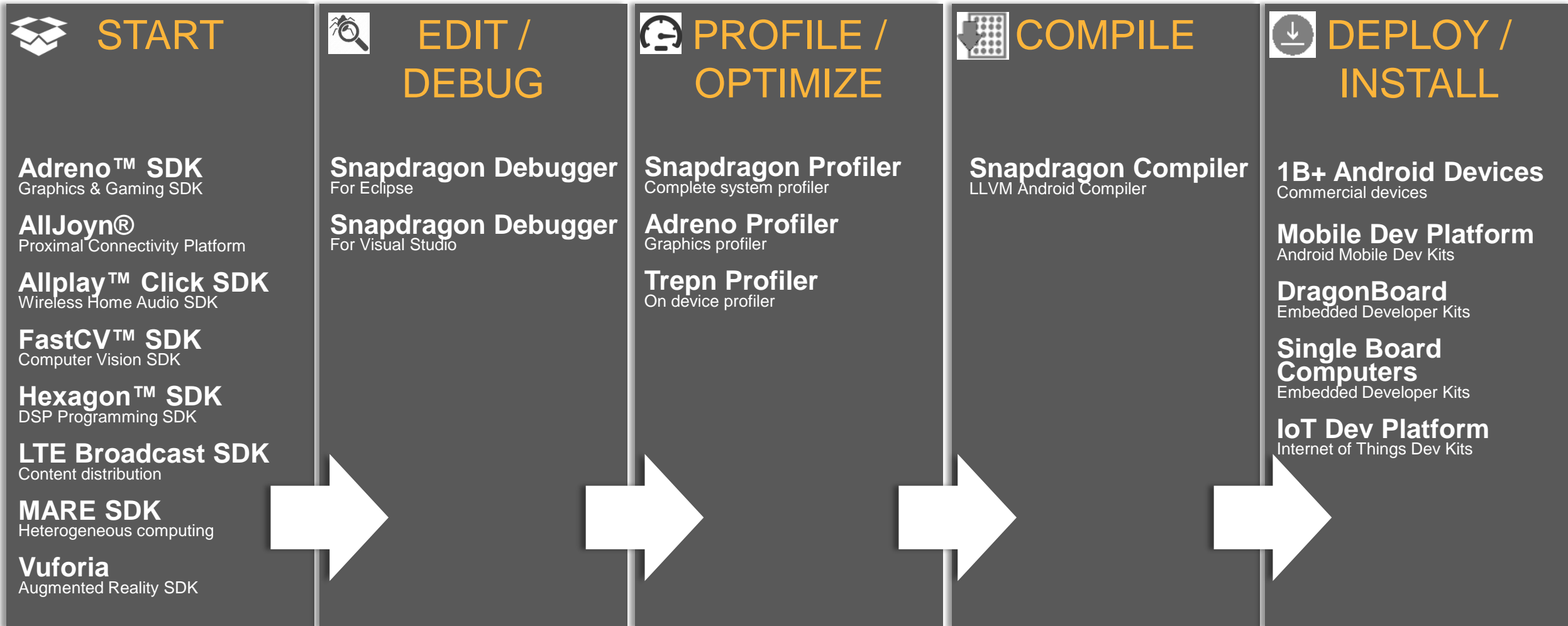
825+

Designs in
Development



Qualcomm Snapdragon Developer Tools

Qualcomm has tools for every stage of software development

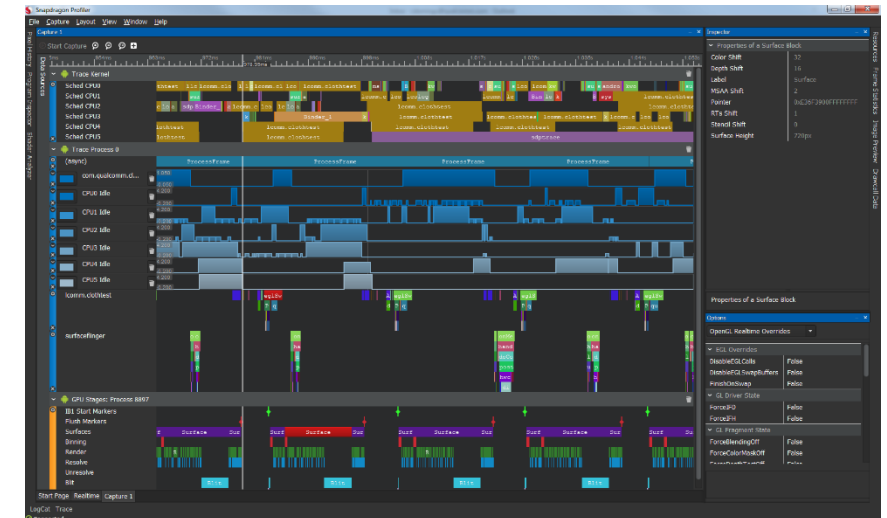
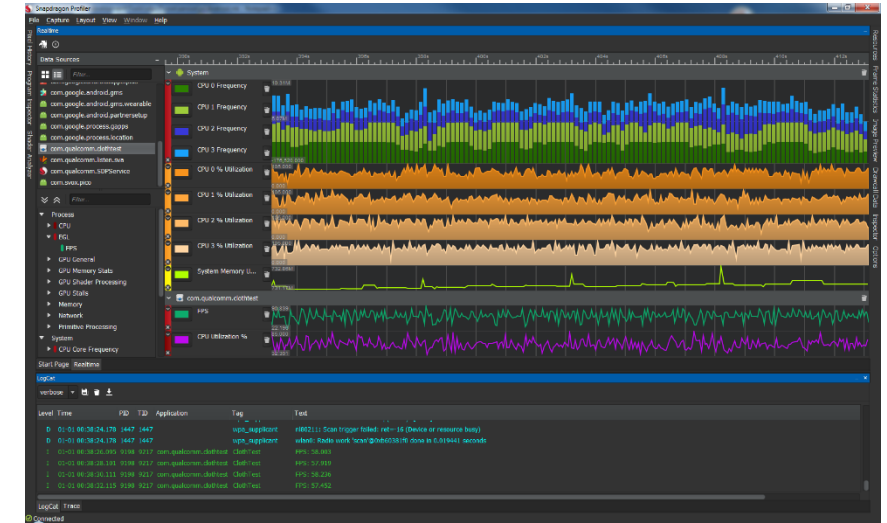


All Qualcomm tools available for download on developer.qualcomm.com

Introducing.... "Snapdragon Profiler"

Unified system profiling tool for all developer needs

- "All-in-one" profiling solution
 - Profiles areas like Android Trace, CPU, GPU, Memory, Power, Thermal, Performance and Network usage
- Comprehensive feature set
 - Includes interactive modes like "Real-time", "Trace" & "Snapshot" along with "Over-ride" and "Code analysis"
- "Plug & play" experience for ease of use
 - Works with commercial devices and commercial apps over standard USB
 - Works with all standard desktop OSs (Windows, OSX & Linux coming soon)
- Designed for all types of developers
 - Useful to all from high level Java API to low level system developers
 - Supported on all tiers of Snapdragon devices



Available for download on developer.qualcomm.com

Snapdragon Profiler Demo

Performance, Power and Thermal Profiling of the CPU and GPU

- Real-time demo
 - Shows whether your app CPU bound or GPU bound?
 - Are you using all available cores?
 - How can you tell when your device is throttling
 - The importance of video frame rates
- Trace mode demo
- Snapshot mode demo
 - View textures and shaders
 - Edit shaders
 - Show pixel history

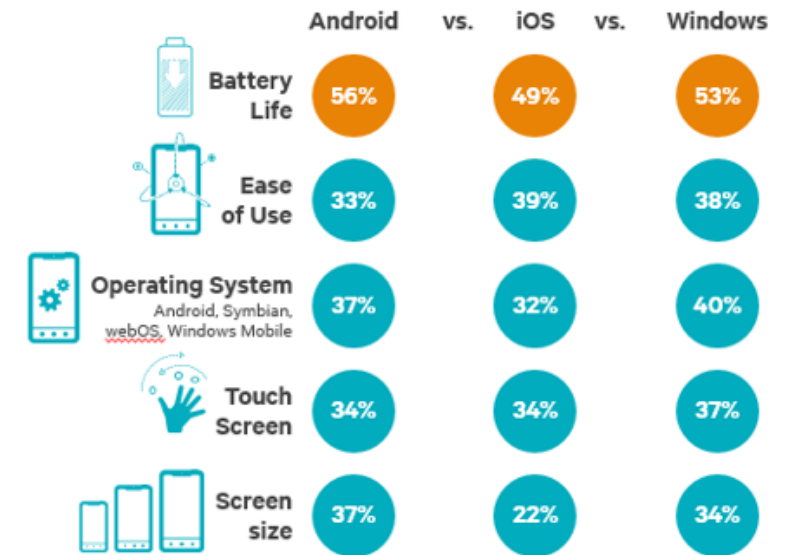
Available at developer.qualcomm.com

Thoughts about Power Consumption

Battery life is extremely important to consumers

- Most developers don't power profile their software even though it's easy to do
 - Software power measurement is accurate and will show you if your app consumes more power than similar apps
- Lowering power consumption results in better battery life
- Focus on the biggest consumers of power (e.g. screen, processor, cellular radio)
 - Having a dark theme option can lower power consumption by 50% or more
 - Many apps keep the processor awake when they shouldn't
 - Most apps don't manage the cellular radio in an efficient manner
 - Use best practices when you take a GPS fix

Top 10 Smartphone Purchase Drivers²



² Source: IDC's ConsumerScape 360 by IDC Michael DeHart

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Power Measurement Best Practices

In order to get accurate power measurements you need to follow a few simple best practices

- Remove your USB cable – You cannot display accurate power readings when your mobile device is charging or connected to a computer. Tip: Use ADB over Wi-Fi
- Minimize background processes – Open the Apps manager, go to Running and close all remaining unneeded apps and stop all unneeded services
- Focus on what you're measuring – Turn off everything that is not related to what you want to measure (e.g., Wi-Fi, Mobile networks, Location (GPS), Bluetooth, Google Now, etc.)
- Minimize the impact of the screen – The screen is the biggest consumer of power. Turn the brightness down to the minimum possible level or turn it off
- Watch for spikes that are correlated
- Compare your app to other apps
- More power measurement Best Practices are [available here](#)

Summary

- Performance profiling shouldn't be limited to just CPU and GPU metrics
- Power, data, memory and thermal profiling are also important
- Simple changes can reduce power consumption without affecting performance and improve your frame rates
- Longer battery life and smoother graphics will result in happier users
- Visit developer.qualcomm.com to download Snapdragon Profiler and our other tools
- Stop by the Qualcomm booth to get expert advice and see our workshops:
 - Robotics, Embedded Computing for IOT, App Performance Optimization Workshop

Available at developer.qualcomm.com

Thank you

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