

Mobile World Congress 2018 Intel Booth Demonstrations

5G will transform how we experience the world and how we do business, and our devices will need to meet our increasing demands for connectivity and thin and light form factors. Intel is working with communications industry leaders -- from service providers to telecom equipment manufacturers -- to define, prototype, test and deliver early 5G products, solutions and use cases that will redefine the market. On-site at MWC18, attendees can experience the following technology highlights and demonstrations in the Intel booth (#3E31):

5G TECH HIGHLIGHTS

- **5G 2 in 1 Concept PC** - Get a first sneak peek at a 5G-enabled 2 in 1 concept PC. Soon 5G-connected mobile PCs will deliver the critical speeds and capacity necessary to open the door to new experiences hardly imaginable today and make connecting online for any experience from anywhere, anytime the norm.
- **Interoperable 5G NR** - See a working 5G NR (new radio) connection, as Intel and Huawei* demonstrate interoperability of 5G NR between an Intel client (MTP) and a Huawei 5G base station.
- **Dell* Microserver** - This demo features the newly launched Intel® Xeon®-D processor showcased in Dell's microserver platform for next-generation 5G SD-WAN and vCPE.
- **Silicon Photonics for 5G** - See a demonstration of Intel 100G optical transceivers designed specifically for 5G wireless applications.
- **5G Network Orchestration** - This demo shows how ONAP (Open Network Automation Platform) orchestrates and manages NFV (network function virtualization) service across multiple Intel Xeon-processor based clouds.
- **5G Distributed Cloud-IoT** - This demo showcases distributed cloud capabilities for 5G and IoT and features the Ericsson* EDS platform for the edge and HDS platform hosting third-party OEMs demonstrating RSD (rack scale design) in communication networks.

CONNECTED CAR

With 5G connectivity, vehicles and transportation will become more convenient, more productive, and more enjoyable -- delivering critical information and broadband access for work and pleasure. Intel's connected car innovations and solutions at MWC18 include:

- **5G-Connected Car** - See a live, over-the-air 5G connection in action, streaming 4K UHD video, using the first successful multi-vendor 5G-connected car trial from Toyota* (first shown in 2017) and showcasing the Intel® GO™ 5G Automotive Platform that provides the client connection to a 5G base station.
- **5G/LTE Dual Connectivity** - This demonstration shows 5G/LTE dual connectivity between an Intel UE with an Ericsson eNode B, which uses LTE and 5G simultaneously when both networks are in range.
- **Deploying In-Car Payments** - With payment solutions becoming increasingly mobile and convenient, this proof-of-concept demonstrates how payments could work for connected cars and other IoT-enabled devices that offer services to the car, without sacrificing security.
- **Dual SIM Dual Active (DSDA)** - DSDA separates car and driver data, allowing automotive OEMs to choose operators with the best coverage, while drivers can use their existing cellular service and leverage external antenna systems for improved performance.

- **V2X for Traffic Management** - See a real-time use case of traffic and congestion management using an example of V2X (vehicle to everything) and how it can be implemented using Intel architecture for top performance, low latency and improved capacity.
- **Mobileye Camera** - See how the Mobileye camera and Intel's Road Experience Management (REM) system collect data to interpret the world around the car, which will enable crowd-sourced mapping for real, up-to-date and accurate maps for autonomous driving.

SMART CITIES

The cities of the future will thrive thanks to 5G. 5G will enable billions of things to connect to network resources and deliver valuable public services for efficiency, safety and convenience. In this end-to-end demonstration, Intel and its partners showcase 5G technologies working together to deliver an enhanced quality of life for citizens in major metropolitans. At MWC18, Intel's Smart Cities demonstrations feature:

- **Volteo* SmartCity Manager** - See a near real-time, integrated, operational view of a city made possible by 5G, with analysis of environmental, traffic, parking, video and more sensor data connected through a city-wide 5G network, all aimed at providing city operations teams with detailed information to enhance public safety, security, and livability.
- **Citybeacon* Public Kiosk** - The demonstration shows how Citybeacon leverages 5G to connect communities through local information, alerts, products and services and creates an all-in-one, self-funded intelligent infrastructure, enabling cities to provide value-added services to citizens, businesses and tourists.
- **GE* CityIQ Intelligent Node** - See how intelligent nodes with Intel IoT technology use sensors to collect data that enable economic growth, civic engagement, public safety, traffic management, monitoring of parking availability and micro-level environmental monitoring, and deliver edge analytics for real time data intelligence to improve city operations.
- **Transforming In-Vehicle and City Experiences** - Information consumption and sharing is being transformed through 360-degree video, interactive sightseeing, mobile advertising, and smart traffic management all enabled by 5G V2X (vehicle to everything) communication links between vehicles and road side units. See this proof-of-concept, industry-first prototype based on future standards bringing 5G and smart cities closer to reality.
- **Bosch* Climo AQM** - In this demo, a real-time, end-to-end solution delivers intelligent data to help cities manage air quality by measuring key air pollutants and environmental parameters, providing reliable data and analytics with no additional infrastructure investment.
- **5G Facial Recognition** - Showcasing edge video analytics for smart city applications, this demo features the Intel FlexRAN/MEC solution and live trial deployed in China by ZTE* and China Unicom*.
- **Image Detection** - See real-time image detection and classification using a prototype of the Intel Neural Compute Stick 2 and Intel Movidius VPUs (visual processing units) at the edge.

MEDIA & ENTERTAINMENT

Media and entertainment of the future will be more vibrant, more immersive and deliver near real time interactivity thanks to 5G with faster speeds, ultra-low latency and massive capacity. Intel's new media and gaming usage demonstrations at MWC include:

- **Edge Computing with Nokia* AirFrame Portfolio** - This demonstration of the Nokia AirFrame portfolio, powered by Intel Xeon Scalable processors, showcases the delivery of media and entertainment in 5G networks by leveraging multi-access edge computing, which delivers a more efficient architecture by keeping high bandwidth streams as local as possible.

- **5G and Smart Stadium with Nokia** - See the next generation of the stadium experience using 5G and Edge Video Orchestration to augment live events with real-time streaming video, allowing fans to watch the action from any angle on a personal device.
- **VR Gaming over 5G** - See how 5G's fast speeds and ultra-low latency will unleash gameplay from anywhere with high-performance experiences and nearly immediate game responsiveness.
- **Solving mmWave Delivery to Homes** - This demonstration shows how Intel enables transmission of a 5G mmWave signal through glass to an inside unit gateway, simplifying installation procedures for a connected home or business.
5G Smart and Connected Home - See how the Intel-based Telco Gateway for the connected home enables the simultaneous streaming of multiple 4K HDR video over the air over a mmWave fixed wireless network connection.
- **Wi-Fi & 5G: 802.11ax** - Experience concurrent video streams on a 4K monitor to see improvement in latency and video experiences when streaming over 802.11ax, which is designed to meet the ever-increasing demands on Wi-Fi and is expected to deliver up to 40 percent higher peak data rates for a single client device and increase network efficiency by more than four times.
- **Experience Motor Sports** - Partnering with Ferrari* North America, Intel AI and data center technology deliver an enhanced motorsports experience for spectators.

OLYMPICS

Intel technology helped bring the future of 5G to the Olympic Winter Games PyeongChang 2018. Intel 5G technology powered the world's first broad-scale 5G network, as part of the biggest showcase of 5G technologies to date at the Olympic Winter Games and will continue to help drive the 5G network forward at future Olympic Games.

- **Steep™ Road to the Olympics Video Game** - Experience the Olympic Winter Games PyeongChang 2018 by exploring an open world that includes 12 official Olympic events, such as Big Air, Downhill, Giant Slalom, Ski and Snowboard halfpipe, slopestyle and more. Events are played in renders of actual Olympic venues, giving players a gaming experience based on real mountains and slopes.
- **Intel True VR streaming over 5G** - With Intel® 5G technology, experience the Olympic Winter Games content in virtual reality. From the Olympic venue spectator zones, get a front row view of the Olympic Winter Games with Intel® True VR over a live 5G network powered by Intel 5G technologies and connectivity.
- **Shooting Star Drones** - Intel made headlines at the opening ceremony of the Olympic Winter Games PyeongChang 2018 with intricate drone displays. This demonstration showcases videos of drone shows in PyeongChang with drones coming to life on-screen for a dynamic experience of an Olympic drone light show.

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