

FAB\$ and LAB\$

NXP Semiconductor: Bringing Bright Minds Together



NXP was founded in 2006, leveraging decades of experience in semiconductors under the Philips name. In the nearly 20 years since they spun off, NXP has become a prominent name and innovator in healthcare, wearables, automotive, avionics and autonomous home technologies. NXP has grown and expanded into these industries through partnerships, mergers and acquisitions. One key merger took place in 2015 when NXP and Freescale merged and became the world's fourth-largest semiconductor company and largest automotive supplier. Four years later, NXP acquired Marvell's Wi-Fi connectivity business unit. In addition to these mergers and acquisitions, NXP has opened a variety of labs around the world, including the AIoT Applications Innovation Center in Tianjin, China, focused on driving innovation across smart city, smart mobility and smart home applications. In 2020, NXP opened a GaN fab in Arizona and in 2024, NXP opened its new Smart Home Innovation Lab in Austin, Texas. Today, NXP is present in over 30 countries and employs more than 33,000 people.

The Smart Home Innovation Lab demonstrates NXP's dedication to autonomous home technology design and testing. It is built to resemble a modern, active household, complete with a bedroom, kitchen, media room, home gym and garage. This design enables NXP to more efficiently pursue collaboration with industry and accurate, timely testing. The lab is over 5,200 square feet and employs nearly 30 system engineers. In addition to the dedicated rooms, the lab has fully equipped engineering benches and a showcase of finished projects to spark creative ideation.

In addition to enhancing comfort and style, the Smart Home Innovation Lab prompts engineers to enhance safety, security and ease of use. For example, it provides a space to test voice control in noisy areas and energy efficiency during standard household use. Two key features

of NXP's smart home product family are ultra-wideband (UWB)-enabled chipset "anchors" designed to track for precise location, and edge-based intelligence, including data processing, privacy and security. The NXP UWB sensors enable precise tracking of a device throughout a home. As the device, such as a phone or smart watch, moves throughout the home, it is tracked by the UWB sensor/anchor to prompt changes such as turning lights on or off and thermostats up or down. NXP can enable preset features, such as closing a valve when a sensor detects a water leak; however, presets are not mandatory. As users move throughout the house, the system detects patterns for each individual and applies them to automatically meet their needs. These options enable a safe and comfortable home with true customization.

Some common concerns with autonomous homes are bandwidth, data privacy and connectivity challenges, such as internet outages. NXP's localized devices eliminate those concerns by removing the dependency on the cloud connection. Information is no longer reliant on cloud access; the information is directly processed and managed on the edge. In addition to maintaining operability through internet outages, the disconnection from the cloud increases safety by making autonomous homes less susceptible to security breaches and protects the users' data.

The Smart Home Innovation Lab is a new, exciting addition to the NXP portfolio; however, it is only a sliver of their capabilities and industries. NXP continues to be a trusted partner for innovative solutions – including microcontrollers, processors, sensors and connectivity solutions – in the automotive, industrial & IoT, mobile and communications infrastructure markets. NXP's core belief that we are brighter together is omnipresent in their innovative team, advanced facilities and close partnerships.

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