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TECH

Huawei Manages to Make Smartphones Without American Chips

For China's top smartphone maker, U.S. suppliers are increasingly a nice-to-have, not a must-have



Huawei's drive to shake off its dependence on U.S. parts goes beyond smartphones. PHOTO: ALEX TAI/SOPA IMAGES/ZUMA PRESS

By Asa Fitch and Dan Strumpf

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American tech companies are getting the go-ahead to resume business with Chinese smartphone giant Huawei Technologies Co., but it may be too late: It is now building smartphones without U.S. chips.

Huawei's latest phone, which it unveiled in September—the Mate 30 with a curved display and wide-angle cameras that competes with Apple Inc.'s iPhone 11—contained no U.S. parts, according to an analysis by UBS and Fomalhaut Techno Solutions, a Japanese technology lab that took the device apart to inspect its insides.

In May, the Trump administration banned U.S. shipments to Huawei as trade tensions with Beijing escalated. That move stopped companies like Qualcomm Inc. and Intel Corp. from exporting chips to the company, though some shipments of parts resumed over the summer after companies determined they weren't affected by the ban.

Commerce Secretary Wilbur Ross, whose department oversees export licenses, last month said U.S.-based chip makers were being granted licenses to resume some other deliveries. The department has received nearly 300 license applications, he said.

Meanwhile, Huawei has made significant strides in shedding its dependence on parts from U.S. companies. (At issue are chips from U.S.-based companies, not those necessarily made in America; many U.S. chip companies make their semiconductors abroad.)

Huawei long relied on suppliers like Qorvo Inc., the North Carolina maker of chips that are used to connect smartphones with cell towers, and Skyworks Solutions Inc., a Woburn, Mass.-based company that makes similar chips. It also used parts from Broadcom Inc., the San Jose-based maker of Bluetooth and Wi-Fi chips, and Cirrus Logic Inc., an Austin, Texas-based company that makes chips for producing sound.

While Huawei hasn't stopped using American chips entirely, it has reduced its reliance on U.S. suppliers or eliminated U.S. chips in phones launched since May, including the company's Y9 Prime and Mate smartphones, according to Fomalhaut's teardown analysis. Similar inspections by iFixit and Tech Insights Inc., two other firms that take apart phones to inspect components, have come to similar conclusions.

With the Mate 30, audio chips supplied in older versions came from Cirrus Logic. In the newer Mate 30 models, chips were provided by NXP Semiconductors NV, a Dutch chip maker, according to Fomalhaut. Power amplifiers provided by Qorvo or Skyworks were replaced with chips from HiSilicon, Huawei's in-house chip design firm, the teardown analysis showed.

"When Huawei came out with this high-end phone—and this is its flagship—with no U.S. content, that made a pretty big statement," said Christopher Rolland, a semiconductor analyst at Susquehanna International Group. He said that in recent meetings, Huawei executives told him that the company was moving away from American parts, but it was still surprising how quickly it happened.

A Huawei spokesman said it is the company's "clear preference to continue to integrate and buy components from U.S. supply partners. If that proves impossible because of the decisions of the

U.S. government, we will have no choice but to find alternative supply from non-U.S. sources.”

The Shenzhen-based manufacturer has many phone models and the technology inside can vary depending on where a handset is being sold. Atif Malik, a Citigroup Inc. semiconductor analyst, said in a recent note there was “growing China domestic substitution risk” for U.S. companies, especially in lower-priced phones.

The U.S. has long considered Huawei telecommunications equipment a security threat, citing fears that its gear could be used to spy on Americans—something the company has said it wouldn’t do. Its smartphones, hugely popular in Europe and China, are effectively unavailable in the U.S. More recently, the company has become a bargaining chip in the U.S.-China trade war, with Beijing insisting on relief for Huawei as a condition for a trade deal.

Huawei executives say they anticipated the blacklisting after years of U.S. pressure on the company and last year they began stockpiling spare parts. In other cases, the phone maker identified non-U.S. suppliers or started working on its own replacement parts, according to Huawei executives.

Huawei has said it bought \$11 billion of U.S. technology last year, though not all of it was subjected to export restrictions, a Huawei spokesman said.

Several U.S. chip makers, like Qorvo, Skyworks, and Broadcom, this year warned of earnings hits because of the partial U.S. export ban.

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Huawei’s drive to shake off its dependence on U.S. parts goes beyond smartphones. John Suffolk, the company’s top cybersecurity official, said in an interview that the company is now capable of producing—without U.S. components—the 5G base stations

that are a key part of the infrastructure needed for the high-speed network.

“All of our 5G is now America-free,” Mr. Suffolk said. “We would like to continue using American components,” he said. “It’s good for American industry. It’s good for Huawei. That has been taken out of our hands.”

Huawei began testing these base stations over the summer, a spokesman said. Though its ability to produce them is still limited to about 5,000 a month, the spokesman said the figure should increase to about 125,000 a month next year.

“Independence of U.S. supply indicates that the strategies of the U.S. in trying to isolate Huawei are not working,” said Handel Jones, president of consulting firm International Business

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Despite this progress, Huawei still has one big supply-chain vulnerability. Its smartphones run on the Google Android operating system and make use of a number of Google-made apps. While Android is open source and can be used freely, the apps—including YouTube, Google Maps and the Play app store—aren't. At its launch in September, the Mate 30 was Huawei's first major phone to launch without Google's proprietary apps. Google declined to comment.

The Chinese company's booming smartphone business could suffer—especially in overseas markets—if it doesn't regain access to the apps, analysts have said. Huawei has unveiled a self-developed operating system, called HarmonyOS, to replace Android. But the operating system wasn't originally designed for smartphones and Huawei executives have said they would prefer to stick with Android.

Write to Asa Fitch at asa.fitch@wsj.com and Dan Strumpf at daniel.strumpf@wsj.com