

Chip shortage highlights fragile supply chain

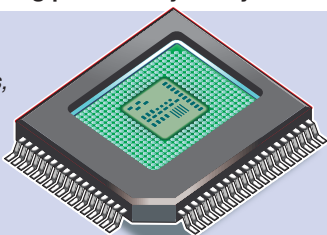
Over 80% of the world's semiconductors originate in Taiwan or South Korea. In the wake of the pandemic this dependence has led to a global shortage, threatening productivity in key industries worldwide

PRODUCTION

Revenue share of semiconductor foundries, Q1 2021

TSMC Taiwan
55.6%

Samsung Korea
16.4%



UMC Taiwan
6.6%

GlobalFoundries U.S. 6.6%

SMIC China 4.3%

Others 10.2%

China plans to invest over \$100bn to build up domestic chip industry

APPLICATION

TMSC revenue breakdown, Q4 2020

Smartphones
51%

PCs, servers
31%

IoT 7%

Data carriers 4%

Others 4%

Automotive 3%

TMSC alone accounts for 70% of auto-industry microcontrollers

Carmakers reduced orders in anticipation of lower demand – now face losses as chip-making capacity is diverted to more valuable sectors

Global auto industry losses
(2021, estimates)

Rapid growth of EV market has boosted demand – each car contains over \$800 of chips

North America

\$5.2bn

Japan / South Korea

\$7.3bn

South Asia

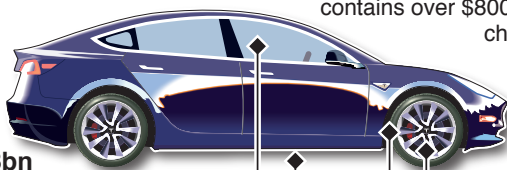
\$9.3bn

European Union

\$13.4bn

China

\$25.5bn



Infotainment systems

Brakes

Steering

Battery management