SEMICONDUCTOR MANUFACTURING IN THE U.S.

Semiconductor manufacturing is an incredibly sophisticated and complex process. The U.S. used to be the global leader in semiconductor manufacturing, but our share has declined precipitously. To reverse this trend, America needs ambitious federal incentives for chip manufacturing that create jobs and foster domestic innovation.

STAGES OF SEMICONDUCTOR PRODUCTION

STAGE 1
RESEARCH + DEVELOPMENT
Research and development are fundamental in propelling the rapid pace of semiconductor innovation.

STAGE 2
DESIGN
Semiconductor circuitry is tiny and complex. Designing a chip requires incredible precision.

STAGE 3
FRONT-END FABRICATION
Many semiconductors start out as sand, which contains a large amount of silicon.
STAGE 4

INGOTS
Raw materials such as sand are used to form long silicon cylinders called ingots.

STAGE 5

CUT TO BLANK WAFERS
Silicon ingots are cut into incredibly thin slices called “blank wafers,” then polished.

STAGE 6

PHOTOLITHOGRAPHY
An intricate chip design is imprinted on each wafer using strobes of light.

STAGE 7

CUT INTO DIES
The wafer is divided into as many as 70,000 tiny, individual semiconductors called dies.

STAGE 8

TESTING + PACKAGING
The dies are thoroughly tested and packaged into finished semiconductors.

STAGE 9

INSTALLATION
The finished semiconductor is then installed in the devices that power our modern world.
IT'S TIME TO LEGISLATE INCENTIVES FOR U.S. CHIP MANUFACTURING.

56% DEMAND INCREASE
Global manufacturing capacity projected over next 10 years

77% U.S. SHARE DECREASE
Global manufacturing capacity is down from 37% to 12%
A $50 BILLION FEDERAL INVESTMENT PROGRAM

to incentivize domestic semiconductor manufacturing would lead to:

19 NEW FABS
(10 more than would be built without such investments)

185,000
Average number of temporary American jobs created annually

$24.6 BILLION
Added annually to the U.S. economy as new semiconductor manufacturing facilities, or fabs, are constructed from 2021-2026

280,000
Permanent jobs added to the U.S. economy beyond 2026, including 42,000 direct semiconductor industry jobs

Learn more at www.semiconductors.org