What does it take to build a fab?

An Intel semiconductor factory, or “fab,” is a manufacturing marvel. Every hour, every day of the year, the 70-foot-tall structure produces millions of computer chips, the most complex products on Earth and each not much bigger than a fingernail.

A fab — which includes 1,200 multimillion-dollar tools and 1,500 pieces of utility equipment — takes about three to four years, over $10 billion and 7,000 construction workers to complete. Three of the fab’s four levels support the clean room level, the place where actual chip production occurs.

Intel has fabs in Arizona, Oregon, New Mexico, Ireland and Israel with plans for new fabs in Ohio and Germany.

What it typically takes to build a pair of leading-edge fabs

The heaviest cargo are chillers at 55 Tons. That is equivalent to 12 average-size African male elephants.

58K tons of structural steel will be erected. That is 8X the weight of the Eiffel Tower.

The fan deck houses systems that keep the air in the clean room particle-free and precisely maintained at the right temperature and humidity for production.

The interstitial is the tallest level of the fab.

A clean room is made up of more than 1,200 heavy tools that take new silicon wafers and eventually turn them into hundreds of computer chips. Clean room numbers vary by each fab but are similar across all fabs.

The clean subfab contains thousands of pumps, transformers, power systems and other systems that support the clean subfab. This level is home to the natural gas, pipes, steel and other industrial and heavy production tools. Workers don’t wear bunny suits here, but they do wear hard hats, safety glasses, and clean covers.

Fabs by the numbers

<table>
<thead>
<tr>
<th>Level</th>
<th>1. Interstitial and fan deck (top level)</th>
<th>2. Clean room level</th>
<th>3. Clean subfab level</th>
<th>4. Utility level</th>
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500K cubic meters of concrete will be poured, plus 100K tons of steel reinforcement. That represents more than 23M as much used to build the Burj Khalifa in Dubai, the world’s tallest building.

Facts by the numbers

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