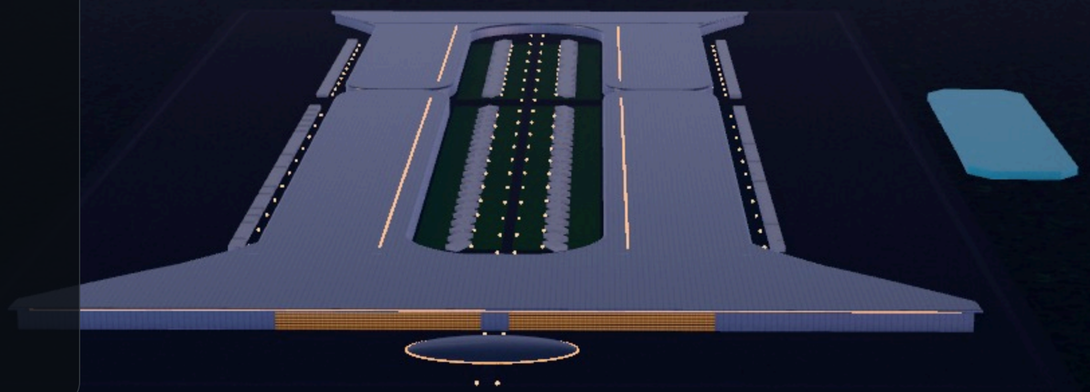
How fast can you build a fab?

Terafab is the largest chip factory anyone has announced. The fastest fab builders in the world never announce anything. This is both of them side by side, with the numbers each one has published.

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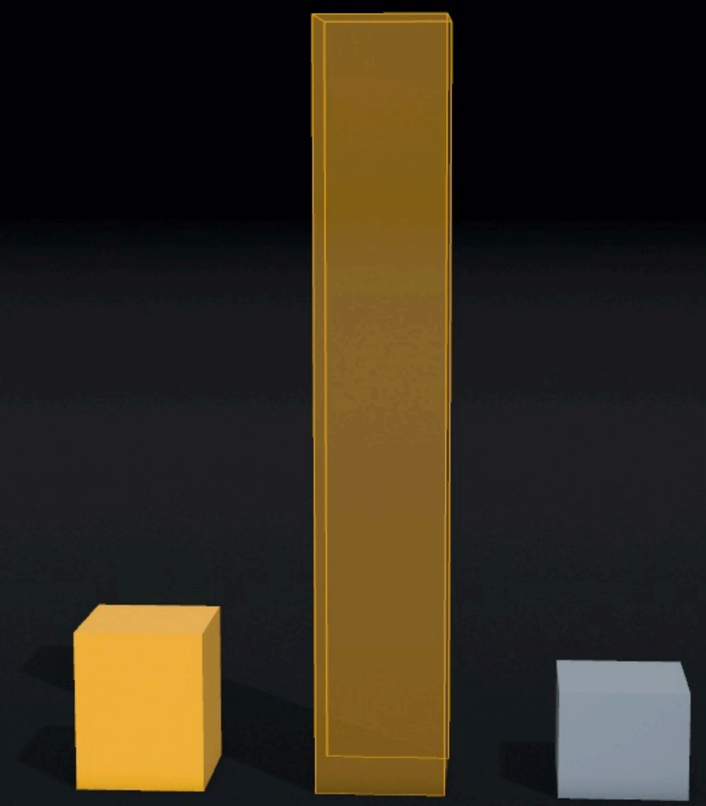
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01 · WHAT HAS BEEN SAID

The claims, in order.

Elon Musk announced Terafab in Austin on 21 March 2026: $25 billion, 2 nm chips, 100,000 wafer starts a month to begin with, and one million a month in the long run. Intel joined on 23 April and Terafab will use Intel's 14A process. In May a Texas filing put the prototype phases at up to $119 billion. In August, Tesla and SpaceX named the site: Grimes County, Texas, with a first phase reported at $16.8 billion.

Electrek (March and August 2026); Intel Q1 2026 earnings release; CNBC (6 May 2026) on the Texas filing; SpaceX Form S-1. The $16.8 billion was reported in the press. The filing says capital expenditure has not been determined, so the scene draws that bar grey. The $119 billion is an upper bound and is drawn transparent.



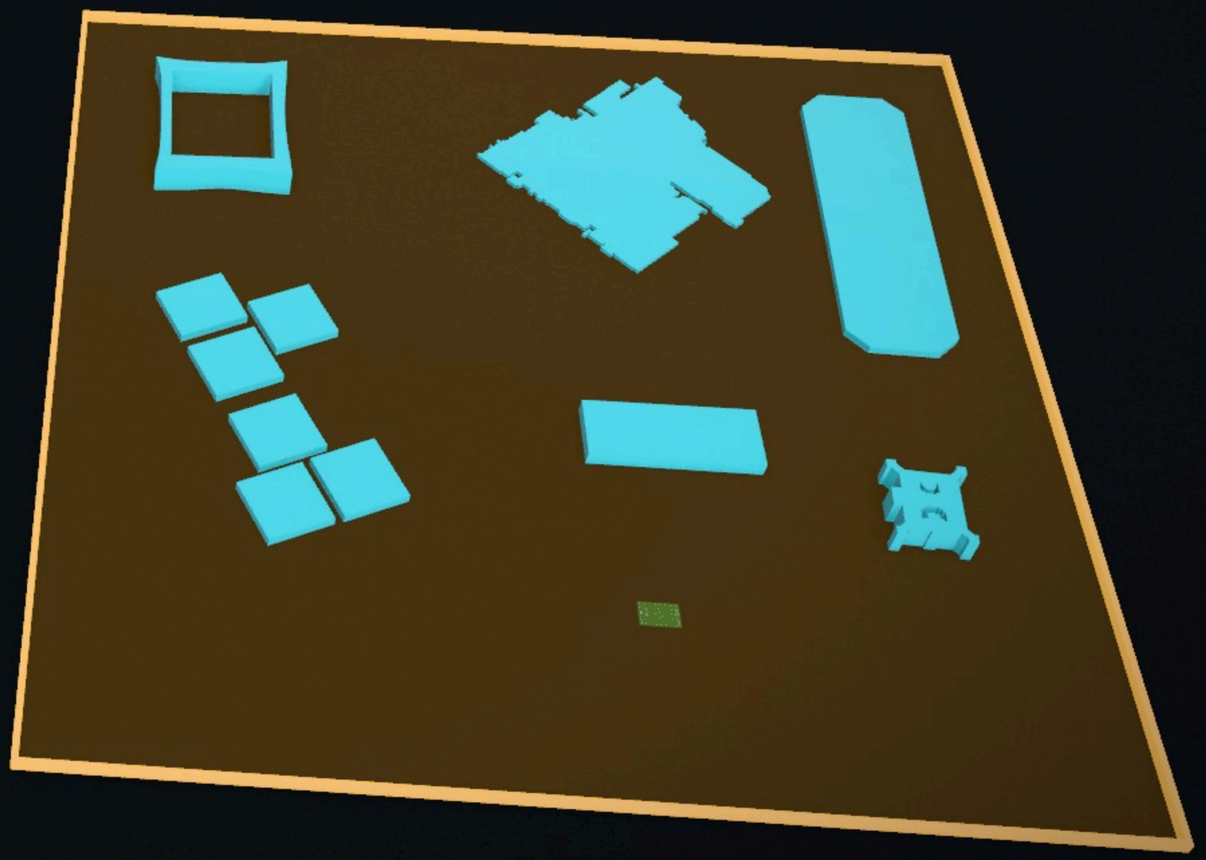
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02 · SCALE

More than 100 million square feet.

SpaceX's own update calls it more than 100 million square feet of manufacturing space. At 100 million, that is 9.29 million square metres: the amber square is that floor area laid out as one floor, about 3 km on each side. Inside it, real buildings from their mapped outlines, at the same scale. Pick one to fly to it.

SpaceX, "Breaking Ground on Terafab in Texas" (6 August 2026); also stated by Elon Musk and reported by Electrek (6 August 2026) and Fortune (10 August 2026). No SpaceX filing was found to contain the figure: we searched the Form S-1, both amendments and the final prospectus on 27 September 2026. Floor areas: Wikipedia's list of largest buildings (read 27 September 2026) for Chengdu, Aalsmeer and Giga Texas; Samsung Semiconductor Newsroom (21 August 2025); TSMC (26 January 2018, as planned); the Romanian Chamber of Deputies. A pitch is 105 by 68 metres (UEFA). Outlines © OpenStreetMap contributors (data of 30 September 2026); heights from OpenStreetMap, the Palace's from the Chamber of Deputies. Where each building stands is ours; the ratios are our arithmetic, at 100 million.



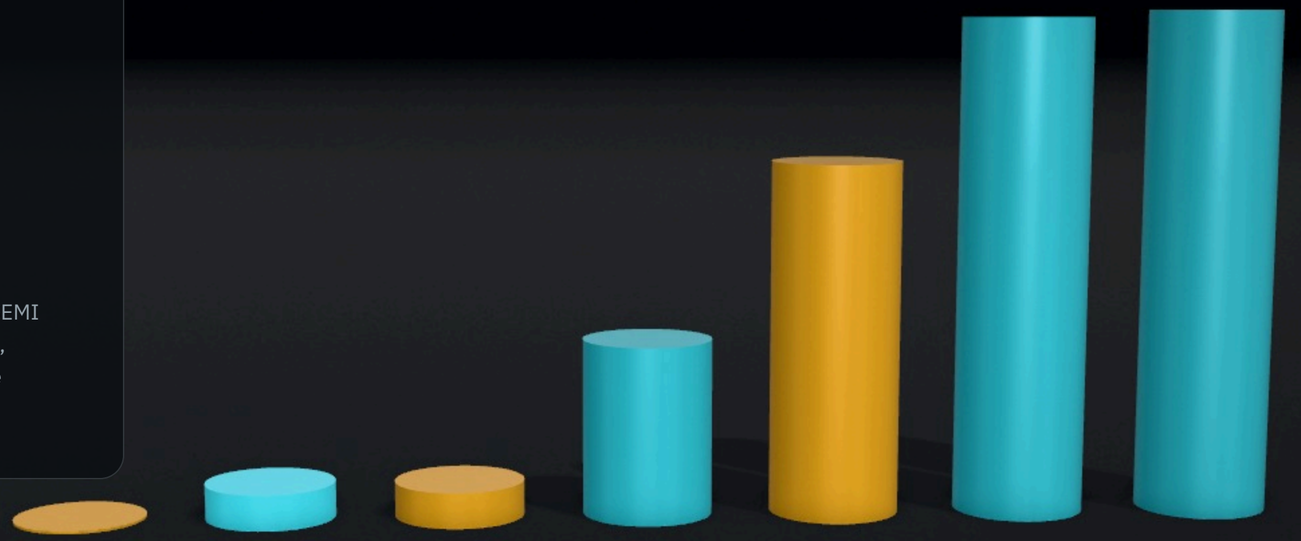
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03 · OUTPUT

A million wafers a month.

A fab's size is counted in wafer starts a month. Each stack is drawn to its number: amber is Terafab, blue is what exists or is forecast. Pick one to compare it with the goal.

TSMC GIGAFAB page (read 27 September 2026, no date on the page); TSMC 2025 Annual Report; SEMI (25 June 2025). The comparisons are our arithmetic. The bases differ: SEMI counts 300 mm wafers, TSMC counts 12-inch equivalents, and Terafab has not said which wafers it counts. A forecast is one vintage of a number that gets revised.



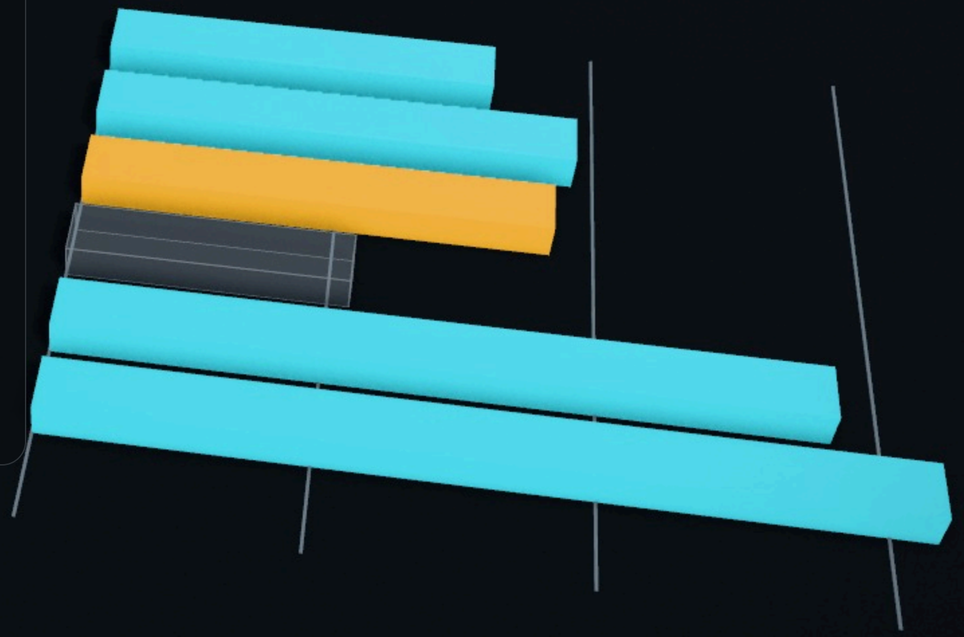
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04 · TIME

The clock starts at groundbreaking.

Exyte, which designs and builds fabs, puts the average build at 19 months in Taiwan and 38 in the United States. Taiwan builds around the clock and gets permits in 6 to 13 months. In the US, permits and design take 14 to 20 months and building is done in daytime shifts.

Exyte, presented at SEMI's Industry Strategy Symposium and reported by Semiconductor Digest and Tom's Hardware (February 2025); TSMC press releases (26 January 2018, 24 February 2024); Wikipedia on TSMC Arizona, citing TrendForce. The milestones are not all the same: an average build, an opening and a planned tool move-in. Read them as orders of magnitude, not as a race result.



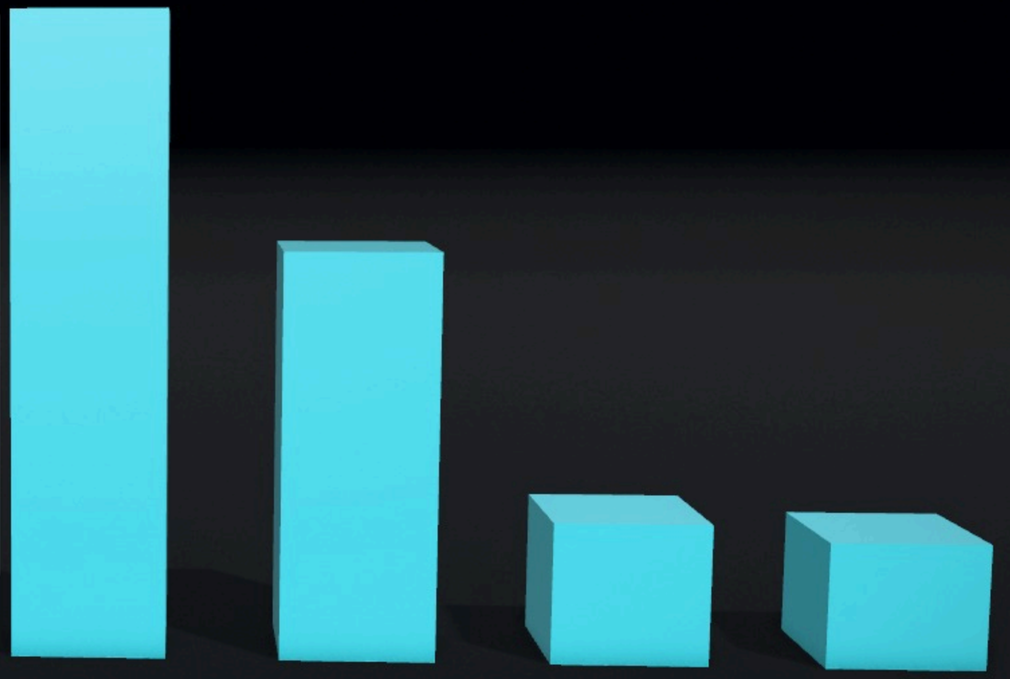
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05 · THE BUILDERS

The fastest builders publish nothing about speed.

Taiwan's fab builders are cleanroom and systems contractors such as L&K Engineering and United Integrated Services. They build for TSMC at home, and increasingly in Arizona, Japan and Europe. The press reports them by their order books. We found no build times published by any of them.

Taipei Times (23 June 2025): order backlogs as reported by the companies. NT$ figures are not converted. "We found no build times" describes our own search, dated 27 September 2026, and says nothing about what the companies know.



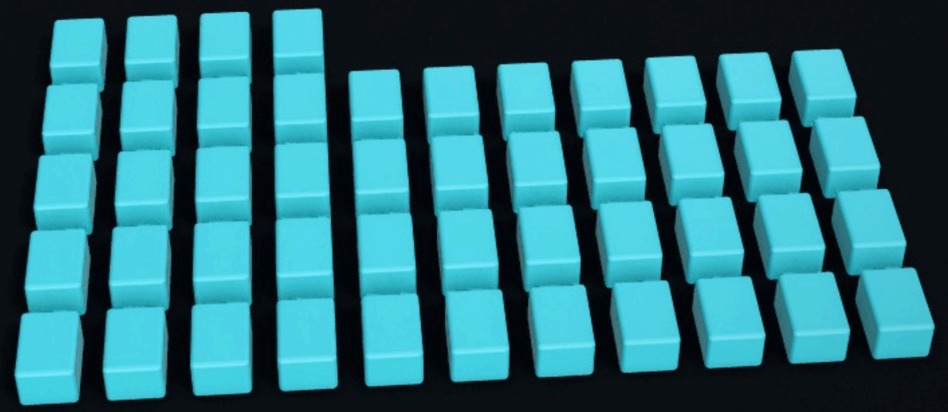
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06 · LITHOGRAPHY

The machine on the critical path.

A leading-edge fab cannot start without EUV scanners, and one company makes them. ASML recognized 48 EUV systems in its 2025 revenue. In July 2026 it said its 2026 capacity for low-NA EUV is "around 65", that it plans to add 30% for 2027, and that it is investigating another 30% for 2028.

ASML Q4 2025 investor presentation (28 January 2026); ASML Q2 2026 results (15 July 2026), CEO statement. 85 and 110 are our arithmetic on ASML's 30%. Tom's Hardware estimated that the full one-terawatt goal would need about 12,600 scanners of all kinds. That is their arithmetic, not ASML's.



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07 · WHAT WE KNOW TODAY

27 September 2026.

These are the steps every fab has to go through. Each one is coloured by what the public record showed on this date. Amber: said by Tesla, SpaceX or Musk. Blue: in a filing or a partner's release. Grey: we found no report.

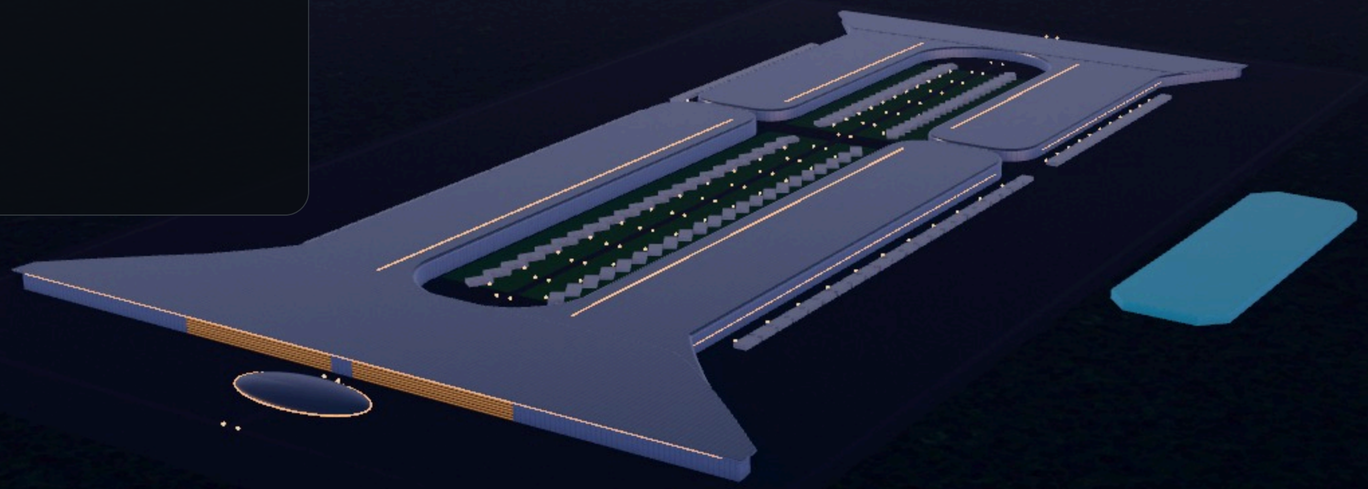
Electrek (6 August 2026); SpaceX Form S-1; Intel Q1 2026 earnings release. "No report found" is dated to our search on 27 September 2026.



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08 · WHERE TO GO NEXT

Inside the building.



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Sources

- Electrek: announcement (March 2026) · Electrek: Grimes County (August 2026)
- Intel Q1 2026 earnings release · DCD: Tesla Q1 2026 call
- CNBC: the Texas filing · SpaceX Form S-1
- Wikipedia: largest buildings · Fortune (August 2026)
- TSMC: GIGAFAB facilities · TSMC 2025 Annual Report · SEMI (June 2025)
- Tom's Hardware on Exyte · TSMC: Fab 18 · TSMC: JASM opening · Wikipedia: TSMC Arizona
- Taipei Times: cleanroom contractors
- SpaceX: Breaking Ground on Terafab in Texas, with the rendering · KBTX: first look at the Terafab facility
- Samsung Semiconductor: inside Samsung's fabs · TSMC: Fab 18 groundbreaking · Romanian Chamber of Deputies: the building
- IFAB Laws of the Game, Law 1 · Building outlines © OpenStreetMap contributors
- ASML Q4 2025 presentation · ASML Q2 2026 results · Tom's Hardware: analysing Terafab

Edition 1, 27 September 2026. Next review: the week after Tesla's Q3 2026 results. The scenes are built in code when the page loads: no photographs, no downloaded 3D files. They render in real time with WebGL, at a quality chosen for your graphics chip.

How fast can you build a fab?

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