

Red Seas Ahead for CW Lasers

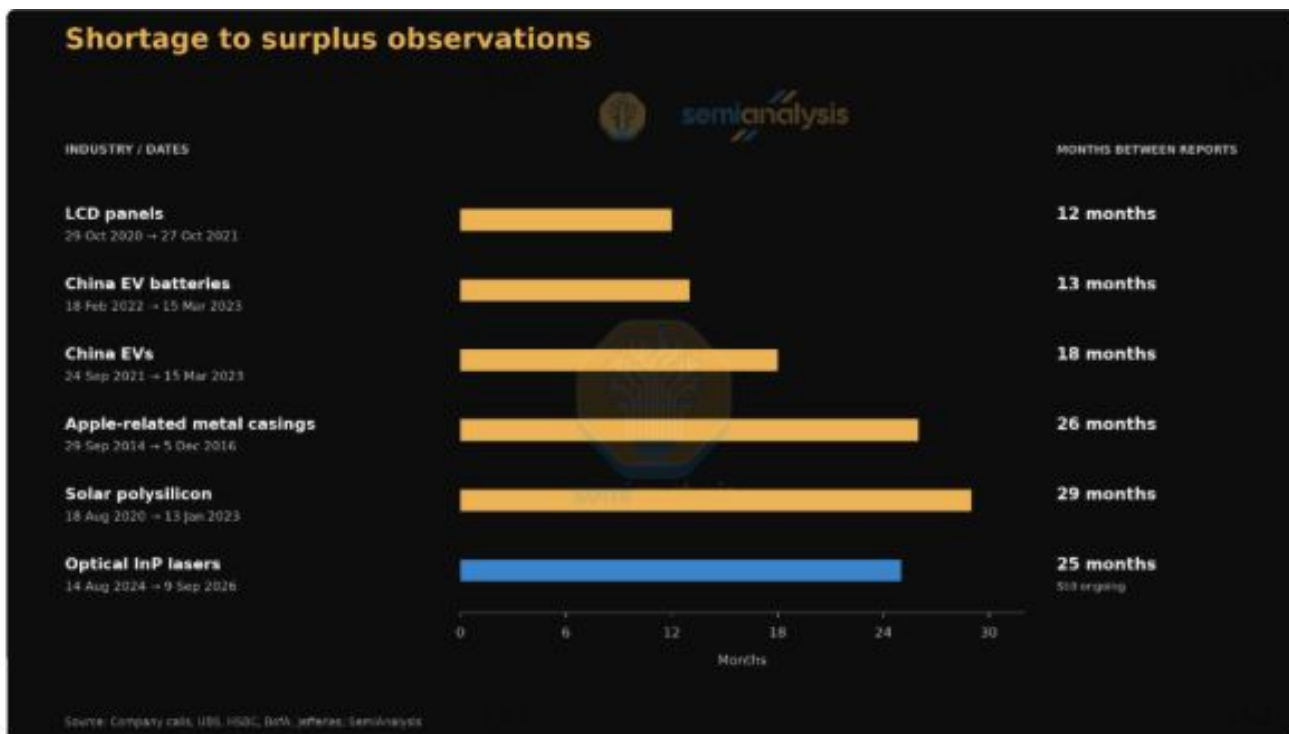
Timothy Chang | Monday, September 28, 2026

Executive Summary

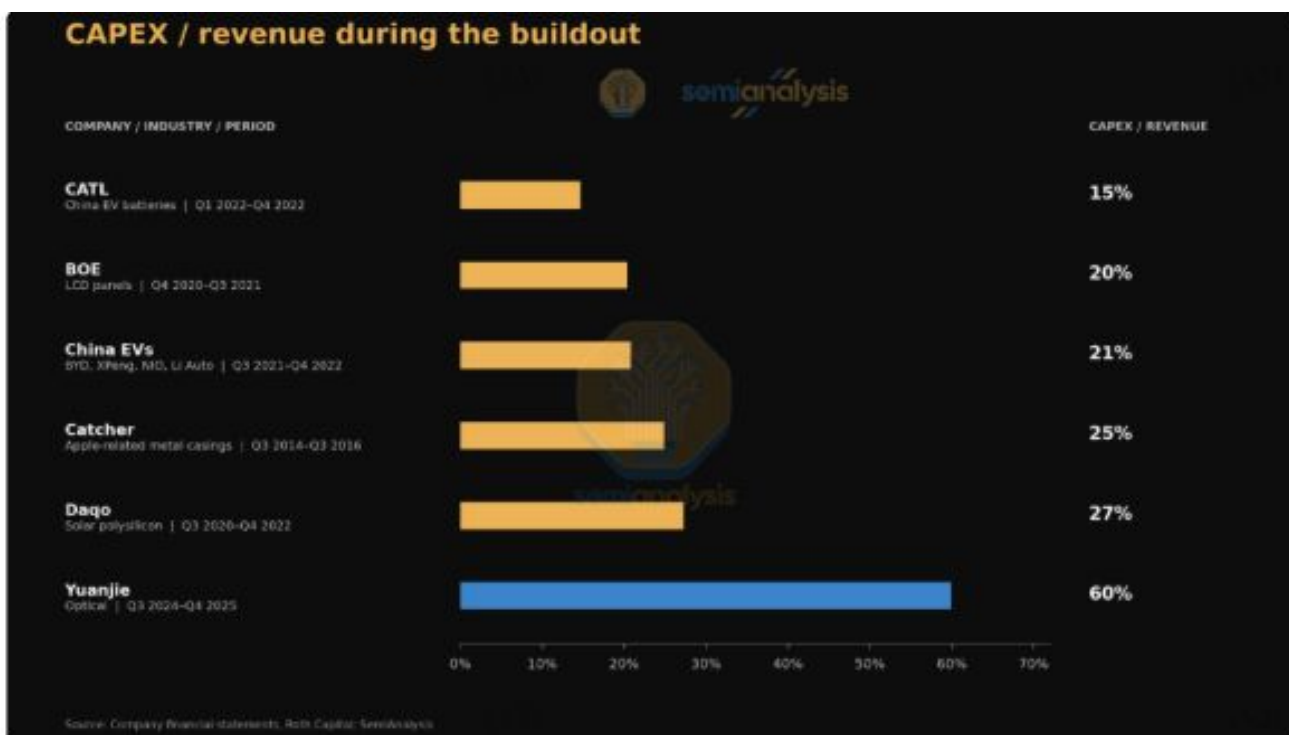
- **Aggressive Chinese expansion could turn CW Lasers into red seas.** At least five Chinese suppliers in our checks target 2.5-3X capacity expansion on a 100mW-equivalent basis in upcoming years. Yuanjie spent 60% of its revenue on CAPEX from Q3 2024 through Q4 2025, highlighting the scale of investment behind this cycle.
- **CW laser oversupply should arrive in stages.** We expect Class A, 70–100mW, to enter oversupply in 2027 and Class B, 100–300mW, in late 2028. Class C, 300mW and above, should remain short entering 2030, although supply may catch up in 2H30.
- **We expect NPO to take a larger share of Rubin Ultra NVL576 than the market anticipates.** Our model uses an equal CPO/NPO split to reflect market consensus, but we doubt near-term UHP supply can support that CPO mix. Nevertheless, we expect customers to secure UHP supply for later platforms, sustaining demand beyond Rubin Ultra.
- **Upstream constraints can delay the ramp.** We see e-beam equipment as a more immediate bottleneck than InP substrates and MOCVD, while nanoimprint and DUV offer limited near-term relief. Our current supply estimates reflect manufacturer expansion plans. A more detailed Networking Model forecast will incorporate wafer and other upstream constraints.
- **Lumentum retains a technical moat, while Coherent offers a longer-term cost opportunity.** Chinese progress could reduce Lumentum's scarcity premium before materially affecting shipments. Coherent's geopolitical position gives it more room to pursue six-inch InP, but we remain cautious on near-term UHP output.
- **Yuanjie's progress could reshape competition after 2027.** We see strong progress in 300mW lasers and believe YJ is catching up with Sumitomo potentially moving ahead of it. However, we think its valuation already reflects much of this opportunity.
- **AAOI's laser refocus offers potentially unpriced upside.** Its laser heritage supports a larger merchant UHP DWDM business, while we believe the stock still trades primarily on transceivers. We like the risk-reward, with qualified volume production the key execution test.

CW Lasers Are China's Next "Red Sea" Industry

We believe CW lasers below the UHP tier will become China's next "red sea" industry as suppliers expand capacity aggressively. At CIOE, we saw aggressive expansion plans for 70 to 100 mW CW lasers and claims of 300 and 400 mW UHP capability although we remain cautious about these vendors' ability to produce UHP devices at scale. China saw similar cycles in the Apple supply chain, polysilicon, LCD panels, batteries and EVs. Late in these booms, new entrants claimed they could match incumbents even in the hardest technical niches. Many failed to deliver competitive products, but the threat pushed incumbents to expand to defend customers and cut costs, until shortages became oversupply.



Some may argue that AI demand is too strong for those earlier oversupply cycles to apply. **Yet Yuanjie, China's largest laser chip supplier, already spent 60% of revenue on CAPEX from Q3 2024 through Q4 2025.** That is more than twice the CAPEX intensity of the historical peers in our comparison. We expect that ratio to remain elevated even as revenue grows rapidly. The company announced a RMB 1.251 billion project in February 2026, with a construction period of 18 months. It announced another RMB 4.268 billion project in August, with a construction period of 24 months.



Moreover, Yuanjie is not alone. **Our supply chain checks indicate that at least five other Chinese laser suppliers also target more than a doubling of its capacity each year.** Demand is growing rapidly, but that will not prevent oversupply if enough suppliers qualify their products and expand production even faster.

CW Laser Oversupply Arrives in Stages

We expect oversupply to develop first in lower-power CW lasers for transceivers and NPOs, while high-power lasers for CPOs remain tight for longer.

We divide continuous-wave (CW) lasers into three power classes. Each serves a different part of the optical market:

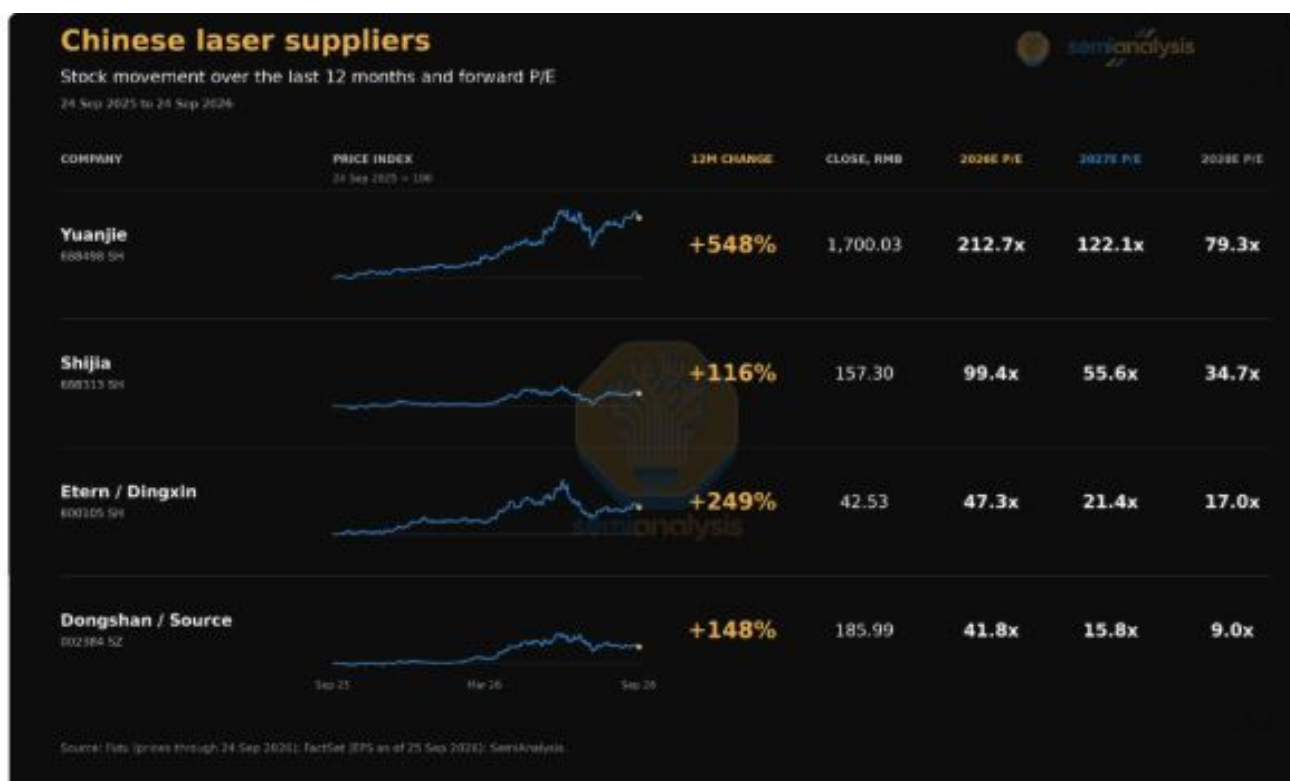
- **Class A, 70–100 mW:** Mainly for scale-out silicon photonics (SiPh) transceivers. We expect oversupply as the market enters 2027.
- **Class B, 100–300 mW:** Suitable for near-packaged optics (NPO) applications. We expect oversupply in late 2028.
- **Class C, 300 mW and above:** For co-packaged optics (CPO). We expect supply to remain short entering 2030, but it may catch up in 2H30.

Beyond aggressive capacity expansion, CW lasers also benefit from smaller dies and higher yields than EMLs, which further increases supply. Our supply-chain checks suggest Chinese laser vendors will expand EML capacity through 2027, then shift aggressively into CW. **Most Chinese players target a 2.5–3× capacity expansion in upcoming years on a 100mW-equivalent basis.**



(Our demand case assumes that 80% of Rubin Ultra will be shipped in the 576-form factor, with that portion split equally between CPO and NPO. This assumption reflects our reading of current market consensus, not our preferred architecture mix. Our own view is that NPO will account for a substantially larger share than CPO.)

We do not expect Chinese competitors to stop, even though they recognize the consequences of oversupply. They still prefer to capture more upside for three reasons. First, customers want suppliers with scale and reliable output before they trust them with large orders. Second, this is a game of chicken, where the first vendor to pull back risks lost upside and eventual displacement. Third, stock-price incentives shape management decisions, and repeated capacity announcements sustain the growth story for investors.



Upstream Bottlenecks

However, **upstream bottlenecks and equipment ramp times can delay the supply increase.** Again, we do not see InP substrates as the biggest bottleneck. Chinese export restrictions constrain substrate availability outside China, and aggressive domestic expansion also tightens supply within China. **We see greater constraints in epitaxy capacity and process equipment, particularly spot-beam lithography for DFB gratings.**

JEOL supplies spot-beam systems for DFB laser production and expects the DFB ramp to drive further demand. For FY3/27, it forecasts orders at twice FY3/25 levels and sales 56% above FY3/25 levels. In August management team reiterate spot-beam demand *“remains robust, supported mainly by production applications for optical devices used in AI data centers.”* These are consistent with the equipment shortage we see in our supply chain checks. We do see laser manufacturers sourcing nanoimprint and DUV as potential ways to ease the e-beam constraint. However, as discussed in our CIOE note, our checks do not yet show a qualified nanoimprint process for volume production of these gratings, while the standard DUV route depends on the transition to six-inch InP wafers.

MOCVD capacity is also tight, but suitable LED equipment could provide additional capacity after conversion and qualification. We still see potential for price increases from epitaxy suppliers such as LandMark, which Minxin and Source use for outsourced epitaxy, according to our checks. However, we do not see MOCVD as the biggest constraint on the ramp.

Our current supply estimates reflect laser manufacturers' expansion forecasts. **We will soon update our Networking Model with a more detailed supply forecast that accounts for InP wafer and other upstream constraints.**

Remain Constructive on Ultra High Power Lasers

We expect ultra-high-power (UHP) lasers above 300mW to remain undersupplied entering 2030. We do not believe near-term supply can support the 50% CPO mix the market expects for Rubin Ultra NVL576. We reiterate our view that the majority will use NPO. However, we expect customers to continue to secure UHP supply for Feynman, Trainium6, AMD's MI500 and MI600 series, and other future platforms.

Lumentum (LITE):

We remain positive on Lumentum's moat in high-quality lasers across power levels, including its stronger mode-hopping control. Part of this advantage comes from its long history in pump lasers, including 800–900mW devices. In March 2026, Lumentum demonstrated a 1310nm device with more than 800mW output at 50°C and more than 1W at 25°C (Lumentum's OFC announcement). That technical depth puts it ahead of Chinese competitors that are still scaling products above 100mW.

In our view, 400mW CPO lasers are a much more manageable engineering task for Lumentum than for these newer competitors. Combined with its geopolitical advantages, this supports our confidence in its financial performance. However, we remain concerned about a derating as Chinese vendors make progress on 300mW lasers that could serve CPO applications. Lumentum could continue to sell its available output while a broader supplier base reduces its scarcity premium.

Coherent (COHR):

We like Coherent's strategic move to six-inch InP, which could strengthen its long-term cost position. Chinese suppliers cannot easily make the same transition, even if they have the technology. It would sacrifice near-term output just when they need capacity most to win orders and gain market share. Coherent's geopolitical position offers some protection from Chinese competition, giving it more room to absorb that disruption. Over time, six-inch wafers and more standard semiconductor equipment, including DUV, could lower its costs and strengthen its competitiveness against Chinese suppliers. However, our checks still suggest a weak six-inch ramp, and we remain cautious about meaningful near-term UHP output.

Yuanjie Semiconductor (688498.SH):

As discussed in our previous NPO note, our checks indicate that NVIDIA is bringing Yuanjie into its laser supply chain. We see YJ supplying 120mW CW lasers for InnoLight's NPO ILS module, which we believe is the strongest option for Rubin Ultra NVL576 scale-up. Recent checks also suggest strong progress on its 300mW CW lasers, including good mode-hopping control. We believe this product targets CPO applications and could change the competitive landscape after 2027. However, we think the stock already reflects much of this potential, and we remain cautious about valuation.

Sumitomo Electric (5802.T):

Sumitomo is also a qualified NVIDIA laser supplier. However, our checks suggest that its UHP products face more technical difficulties than those of its peers. We now see YJ catching up and potentially moving ahead.

Applied Optoelectronics (AAOI):

AAOI was already a leading laser supplier in the early 2010s, and we believe in its technical capabilities. The company began laser production in 1997, well before its current transceiver expansion. Its in-house chip production, CATV and DWDM heritage, and high-power LiDAR experience provide the foundation for its UHP ambitions. We see that process experience as an important advantage in high-power devices and precise wavelength control.

AAOI aims to refocus more of its business on merchant UHP DWDM lasers, with our checks pointing to close development ties with AMD. However, we remain cautiously positive on its ability to turn that technical foundation into a scaled UHP laser business.

We like the risk-reward and do not think the current valuation reflects this laser refocus. In our view, the stock still trades primarily on its transceiver story, leaving the merchant laser opportunity as unpriced upside. If AAOI succeeds, it could become a second Lumentum/Coherent in high power lasers with more capacity in the US. If the ramp falls short, we believe U.S. customers and the government still have a strategic interest in a credible, vertically integrated domestic transceiver supplier.

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