NCAB GROUP

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PCB supply chain outlook

Strategic procurement in a constrained PCB market



Presenter



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GLOBAL PCB MARKET CONDITIONS

Overview

The message across the supply base remains clear:
The industry continues with its seismic reset, the PCB supply chain experiences immense tightening with no short-term relief expected.

AI related demand shows no sign of slowing. It is driving the consumption of capacity and materials to such a degree that the impact this is having upon the total PCB supply chain cannot be underestimated.

Especially in the base material part of the supply chain, where cash is king in terms of supply prioritization.

PCB SUPPLY CHAIN CONDITIONS

The supply chain is beyond stretched



Material availability remains the most critical commodity

It is widely known that material manufacturers have shifted capacity toward high-grade, low-loss materials, reducing the output of standard-loss materials.

The supply of glass yarn, a key subcomponent for base materials, follows the same trend. As a result, the supply chain is being stretched at both ends: widespread shortages of raw materials mean factories cannot produce enough to meet demand.

The industry has entered a seller's market. With material shortages and tightening allocations, especially in China, showing no signs of easing, the landscape has changed in a way not seen before.

GLOBAL PCB MARKET CONDITIONS

The supply chain is beyond stretched

We have passed the tipping point - supply cannot keep up with demand. As a result, factory behavior has changed, and cash is the 'new king'

- With material suppliers demanding shorter payment terms or advance payments, many factories are now asking the same of their customers to ease severe cash flow pressures. "Factories can turn away business without fear of revenue loss.
- They are choosing which technologies, customers, and commitments they want to support.
- Those who secure supply will be best positioned as demand continues to rise and material allocations tighten even more.

PCB SUPPLY CHAIN CONDITIONS

Pre-preg is no longer the only critical bottleneck

Pre-preg was initially exposed, now copper clad laminate (CCL) is the critical risk:

Previously, the main concern was extended lead times for 1080 pre-preg. Now, shortages and allocations affect all pre-preg types, including 2116 and 7628.

The situation has also spread to CCL, with increasing shortages and tighter allocations now impacting the supply of less complex builds, especially 2L and 4L. Factories are struggling to secure materials, and some are even turning away orders.

- **1.5 mm CCL**: Availability is tight and expected to worsen. Factories are receiving around 70% of their historical monthly volumes and are turning to open-market bidding to cover shortfalls.
- **≥1.8 mm CCL**: The situation is critical. Two major laminate producers in China have stopped producing, while others are no longer accepting new orders.

PCB SUPPLY CHAIN CONDITIONS

Why not just increase supply of base materials?

Sounds simple, yet four key factors limit the industry's ability to increase output:

- **Equipment to make glass cloth:** very specific equipment is needed and there is simply not enough to meet demand. It takes 18 – 24 months to build high end looms.
- **Production processes:** limits the ability to quickly scale up or change production.
- **Market premiums:** this explains the fundamental shift to focus upon the higher grade / low loss products at the expense of standard loss materials.
- **Certification of new looms:** a new generation of looms are being developed for standard loss materials. If producers can certify quickly there will be more capacity within 6 – 9 months.

PCB SUPPLY CHAIN CONDITIONS

Copper foil supply is tightening

Copper foil is becoming another important pressure point.

The expectation for the coming months is that copper foil supply challenges will intensify, particularly for high end / AI applications, driven by:

- Increasing demand for low profile copper foil driving changes in production output
- Capacity bottlenecks and high utilization of copper foil producers
- Rising copper costs

The market is divided: standard foils remain relatively available, but the situation tightens significantly for high-performance or low-profile foils (≤ 9 µm, low roughness, HVLP 3/4/5).

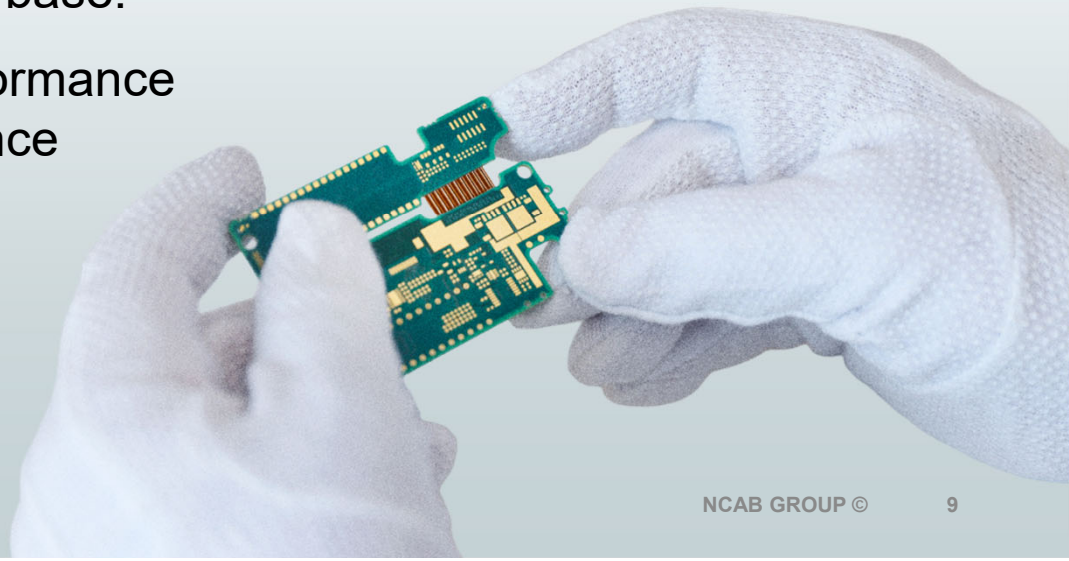


PCB SUPPLY CHAIN CONDITIONS

Approval of alternative materials is KEY

It is critical to allow use of all NCAB approved materials to navigate through these conditions:

- Larger international brands are focusing output of higher grade / low loss materials.
- Increased approval of standard loss materials following extensive testing to provide greater supply / availability within our supply base.
- Defining materials by brand rather than performance characteristics, especially for high performance / low loss materials, will greatly limit supply.
- Don’t ‘design in’ limitations - be open to the use of equivalent materials.



PCB SUPPLY CHAIN CONDITIONS

Lead times and pricing are escalating

Material lead times and pricing have increased faster and further than any point in recent memory.

Material prices are increasing monthly, forcing factories to either accept or lose their allocation - knowing there is a queue of other factories willing to pay whatever it takes to secure supply.

Lead times, particularly for heavier copper weights, or specific brands of low loss / high speed materials, are measured in months, as opposed to weeks.

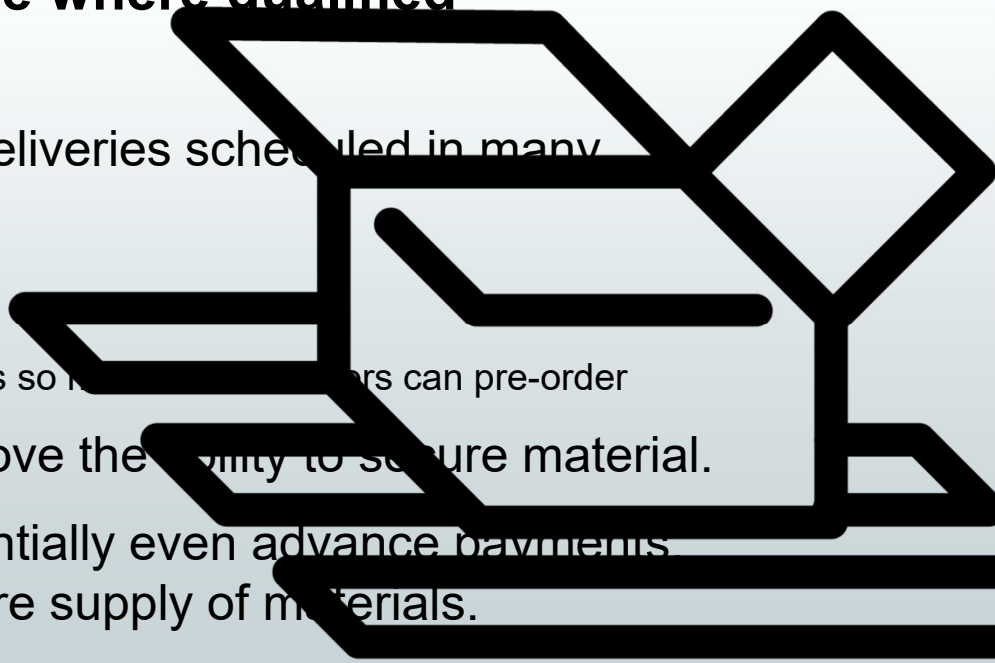
This trend is expected to continue. Pricing is no longer the primary concern - supply and allocation are now the dominant risks.



GLOBAL PCB MARKET CONDITIONS

Order handling and customer planning

- **The best way to support supply continuity is to plan early, avoid speculative ordering, and remain flexible where qualified alternatives are available.**
- Avoid panic buying / loading large orders with deliveries scheduled in many months.
- Load orders to cover what is needed now.
  - For ***European*** needs, place orders early and share forecasts so [illegible]rs can pre-order
- Alternative material approvals significantly improve the [illegible]ure material.
- Requests for reduced payment terms, and potentially even advance payments are expected to become more common to ensure supply of m[illegible]erials.



PCB SUPPLY CHAIN CONDITIONS

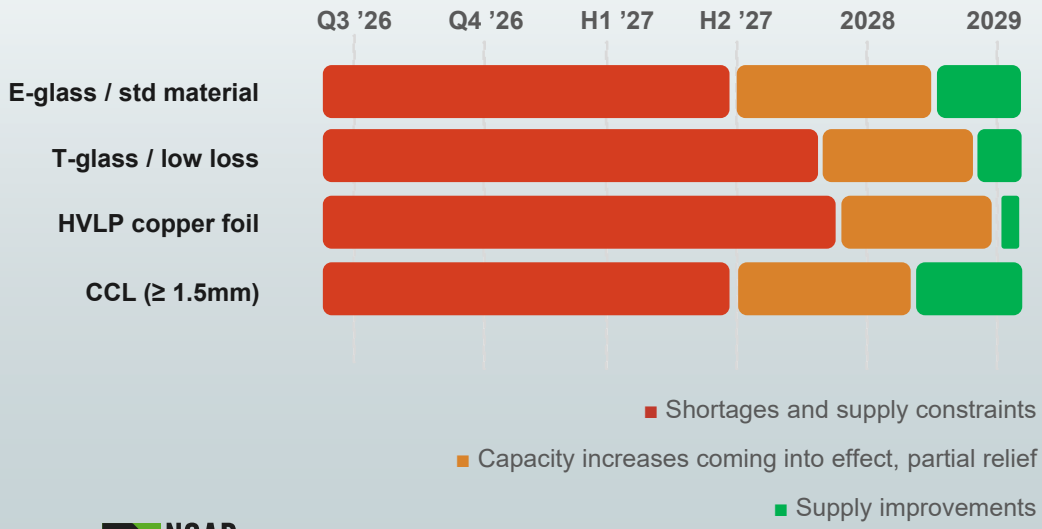
Differences across manufacturing regions

	China	Taiwan	Europe	North America
Material availability	Very tight - widespread allocations and cash payments needed to secure increasing volumes	Tightening. Higher grade material availability manageable	Distributors well stocked. Factories hold common mtrl. Europe key market for suppliers	Distributors well stocked. Factories hold stock high Tg. Some PP showing shortages
Material lead times	Severely extended: 4 - 30 wks depending upon type	Extending: Standard material now on 8 wks. Low loss < China LT	Beyond stock, extending LTs. 6 – 24 wks depending upon type	Growing steadily and expected to worsen as stocks are used
Loading rates	96% average (some > 100%).	90% average (some >100%)	>85%	>75%
Order handling	Load for current needs only. No panic / ½ year buying	Forecasts helpful. Load for current needs (general rule < 12wk window). No volume orders	Forecasts helpful. Market is set up for protos, not volume	Forecasts helpful. Load as normal. Currently no widespread delays
Pricing	Monthly increases continue	Monthly increases. Factories quoting with predictive increases.	Increases seen – varies by factory / brand. Increases < Asia in % terms	Increases seen monthly – varies by factory / brand. Increases < Asia in % terms
Key comment	Dynamic pricing in effect for orders > 12 wks. 30 day payment new norm	RFQ lead time extending. Low conversion rate = no bid Increasing transfers to TW	As with Asia, accept equivalent materials	As with Asia, accept equivalent materials. Expect continued price increases

PCB SUPPLY CHAIN CONDITIONS

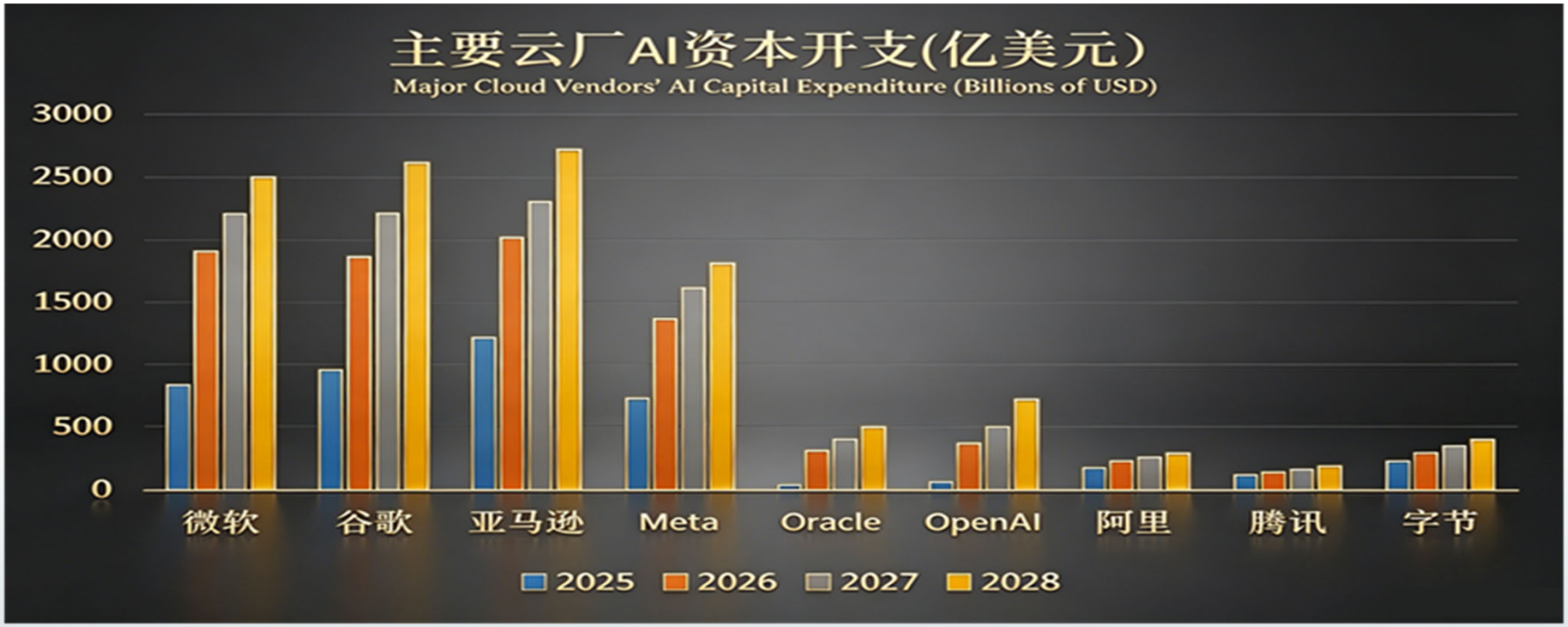
Outlook

With multiple variables impacting predictions, conditions to ease somewhat as we move through the second half of 2027. However, it may not be until mid-2028 that we see meaningful relief.



We must prepare for:

- Availability is the critical factor
- Material allocations and longer lead times remain
- Changes in traditional payment terms – cash is as important as capacity
- Loading out will not secure pricing
- Constant material increases drive dynamic pricing levels (price change at time of material receipt, rather than PO placement)
- Alternative materials / brands must be approved



Microsoft / Google / Amazon / Meta / Oracle / OpenAI / Ali / Tencent / ByteDance

2025-2026 年是增速峰值期：几乎所有厂商都进入高增长，尤其是海外巨头和 AI / 云厂商2025-2026 年增速普遍50%-130%，2027-2028 年回落至10%-35%，属于“高基数下的高位回落”，投入规模仍稳居行业顶端。2027-2028 年增速普遍放缓，但资本开支的绝对值仍在持续走高，行业进入 “高位慢增” 阶段。

The years 2025-2026 represent the peak period of growth: almost all manufacturers, especially overseas giants and AI/cloud vendors, will experience high growth, with growth rates generally ranging from 50% to 130%. From 2027 to 2028, growth rates will decline to 10% to 35%, representing a "high decline from a high base," with investment scale still ranking at the top of the industry. Although growth rates generally slow down in 2027-2028, the absolute value of capital expenditure continues to rise, and the industry enters a stage of "slow growth from a high base.".

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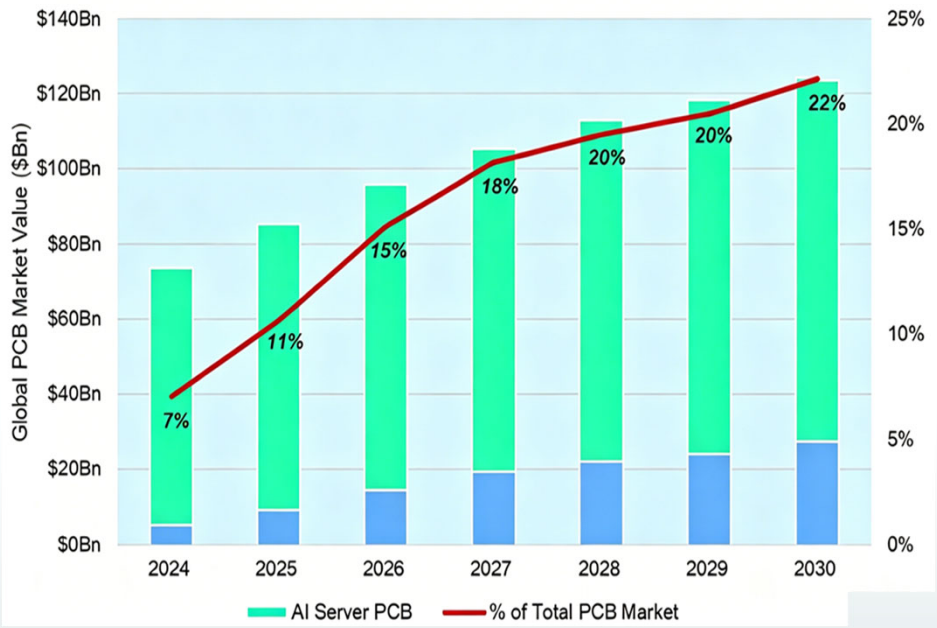


- 全球 PCB 大盘：2024 年 740 亿美金→2030 年 1230 亿美金，7 年 CAGR≈8.8%，AI 算力是拉动 PCB 行业核心增量；
- AI 服务器 PCB：从 2024 年 51.8 亿→2030 年 270.6 亿美金，7 年 CAGR≈31.5%，增速远高于传统 PCB；
- 结构占比：AI PCB 在全 PCB 行业权重由7% (2024) 稳步抬升至 22% (2030)，是全球 PCB 行业最强增长引擎；
- AI PCB 高增速逐步放缓：2025-2026 年高速爆发（同比 50%+），2028 年后进入稳健增长（5%~20%），行业由早期爆发期转入规模化落地期；2030 年 AI PCB 规模突破 300 亿美金，成为 PCB 行业第一大细分品类；

1. Global PCB market: USD 74 billion in 2024 → USD 123 billion in 2030, with a 7-year CAGR of approximately 8.8%. AI computing power is the core driver of growth in the PCB industry.
2. AI server PCB: from $5.18 billion in 2024 to $27.06 billion in 2030, with a 7-year CAGR of approximately 31.5%, a growth rate significantly higher than that of traditional PCBs.
3. Structure proportion: The proportion of AI PCB in the entire PCB industry has steadily increased from 7% (2024) to 22% (2030), making it the strongest growth engine in the global PCB industry.
4. The rapid growth rate of AI PCB is gradually slowing down: experiencing a high-speed explosion from 2025 to 2026 (with a year-on-year growth of over 50%), and entering a period of steady growth after 2028 (with a growth rate of 5% to 20%). The industry has shifted from an early explosive stage to a large-scale implementation stage; by 2030, the scale of AI PCB will exceed $30 billion, making it the largest segment in the PCB industry.

Raw Material Cost Trend & Insights



The Core Driver for PCB Price Hikes in Y2026

Price increases stem from overall capacity shortages of glass fabric, copper, epoxy resin and CCL, driven by booming AI demand.

High-end CCL Demand (N/A/G Customer)

+270%

High-end CCL demand climbed from 1.3M sheets/month (Q1 2026) to 2.9M sheets/month (2026 full-year average), with a forecast of 4.85M sheets/month in 2027.

HVLP4 Demand (N/A/G Customer)

+490%

HVLP4 demand: 284 tons/month → 1,676 tons/month。

PPE/PPO Demand (N/A/G Customer)

+60~+100%

Demand is 8000tons, gap 2000-2500tons, 30% shortage。

1080 glass fabric

+390%

Jan 2025: CNY 3.2/m | July 2026: CNY 14/m

CCL/PP Supplier Utilization Rate

175%

May: Pending orders = 1.46 × monthly capacity

CCL Price Increase (As of May)

140% (Jan-Sep)
260%+ (FY est.)

Price driven by copper, 1080 glass fabric and epoxy resin.

PCB Prices Keep Rising (shipment day)

Cumulative for Jan-Sep 2026 **75%~85%**

Cumulative for full year 2026 **100%~120%**

01

AI Compute Investment

High-end PCB driven by servers, switches & optical modules

02

Capacity taken by high-end materials

Glass fabric capacity shifts to 106 / 1080 / M6+ types

03

Rising costs coupled with longer lead times

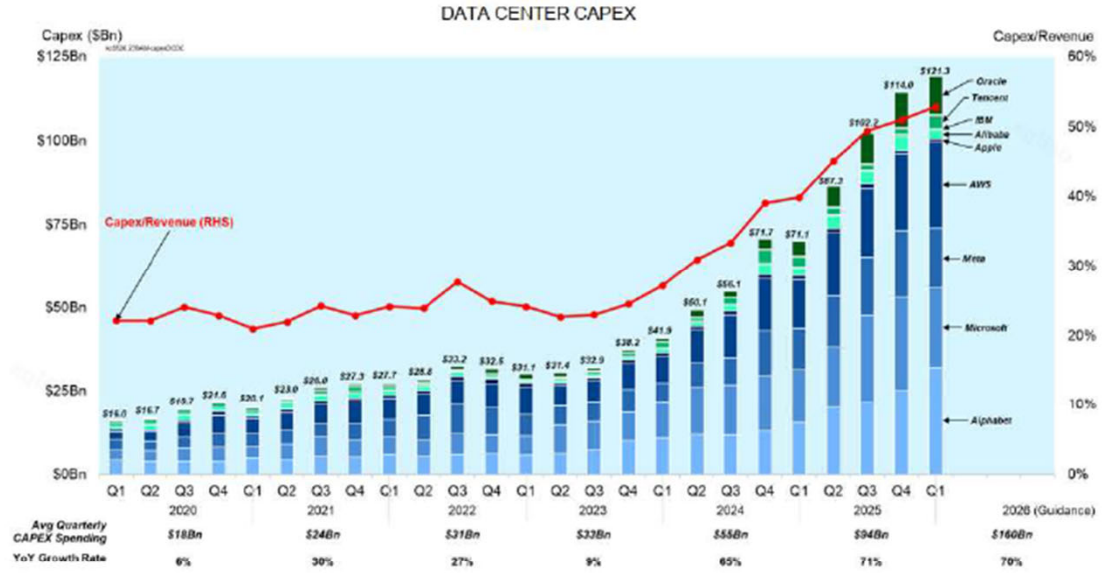
Copper, resin & glass fabric price up, CCL capacity overutilized

04

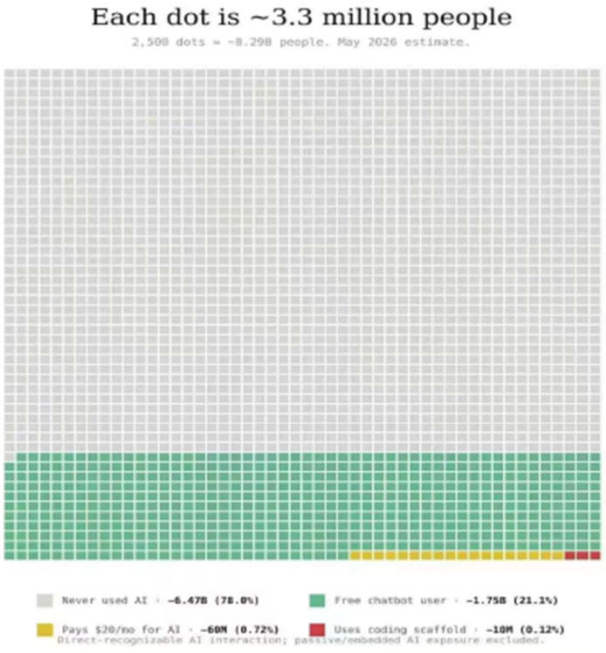
Advanced procurement strategy

Volume lock, substitution, diversion & dynamic pricing in place

Global Data Center CapEx on the Rise: AI Infrastructure Drives PCB Demand Growth



Current AI adoption rate remains relatively low, so capital investment in AI data centers is expected to stay at a high level for the foreseeable future.



才3个红点，就已经把全球算力干到缺货了?

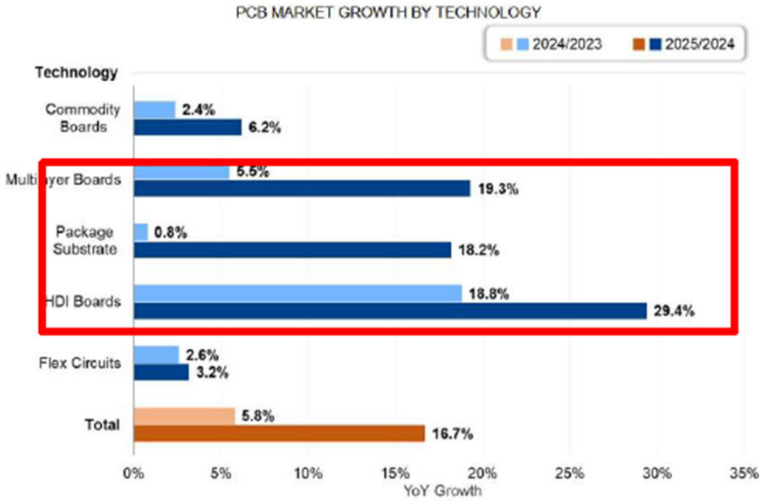
相信大家之前也刷到过这样的图了，但这是最新的~ May 2026

截至目前，原来全球有 78% 的人还没用过 AI...

The latest May,2026 data shows 78% of the global population has never used AI, with merely three red segments representing AI users straining worldwide material market.

PCB Growth Trends

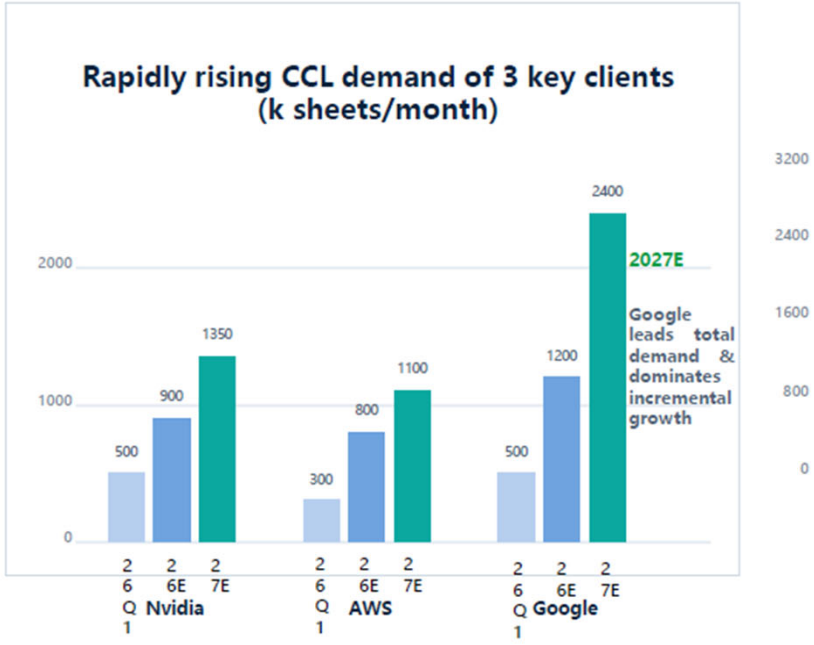
- AI data centers fuel the growth of electronic products, including AI servers, switches and optical modules.
- High-end PCBs (HLC, advanced HDI, substrates) outpace conventional PTH boards and FPCs in growth.

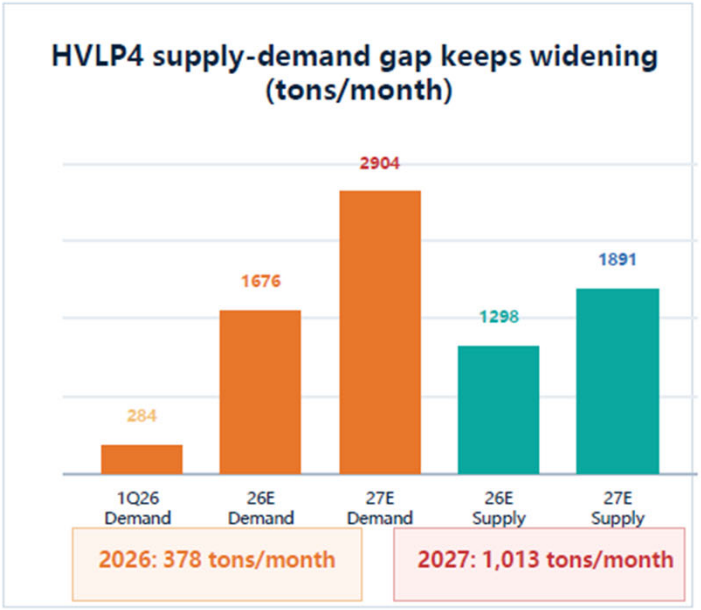


	$Bn	2023	'24/'23	2024	'25E/'24	2025E	'26F/'25E	2026F	2030F	'25-'30* CAAGR
	PC	226	3.5%	234	8.5%	254	1.8%	259	295	3.0%
Computers	*Server/Data Storage*	200	45.5%	291	41.9%	413	42.1%	587	859	15.8%
	Other Computer	147	-2.8%	143	0.7%	145	2.8%	149	173	3.6%
	Mobile Phones	390	6.8%	416	7.5%	447	1.6%	454	552	4.3%
Communication	*Wired Infrastructure*	161	-3.4%	156	10.1%	171	13.0%	193	226	5.8%
	Wireless Infrastructure	81	-9.9%	73	7.5%	79	6.5%	84	105	5.9%
	TV	87	0.7%	87	-3.1%	84	-1.7%	83	74	-2.6%
Consumer	*Audio/Video/Personal*	143	1.0%	144	6.7%	154	5.0%	162	192	4.6%
	Other Consumer	99	-1.1%	98	2.0%	100	3.6%	104	119	3.8%
Automotive		282	4.8%	268	3.6%	278	0.9%	281	336	3.8%
Industrial		307	1.8%	312	2.3%	319	8.5%	346	429	6.1%
Medical		138	4.7%	144	7.2%	155	5.0%	162	194	4.6%
Military/Aerospace		172	8.7%	187	9.1%	204	9.3%	223	280	6.5%
	Total	***$2,431***	***5.0%***	***$2,554***	***9.8%***	***$2,803***	***10.1%***	***$3,086***	***$3,833***	***6.5%***

Strong Growth in AI Data Center Demand

- AI data centers boost demand for high-end CCL and HVLP4 copper foil.
- In 2027, the supply deficit of HVLP4 copper foil will expand to around 1,013 tons/month.





CCL Cost Uplift Driven by Glass Fabric Shortage & High-End Capacity Shift

18-24 Months

Loom Lead Time

The capacity expansion of high-end looms is constrained by equipment delivery, resulting in limited new supply in the short term.

4000-5000

10k meters/month gap

1080 is extremely tight in supply, shortages have also emerged for 2116 and 7628.

120-140%

Theoretical CCL price increase

~65% for thin cores, ~55% for thick cores, mainly driven by glass fabric..

Price Transmission Chain



Capacity Shifts from Regular Glass Fabric to High-End

Capacity Migration Path

General-purpose E-glass cloth /low-end fabric
Price-sensitive and substitutable

→

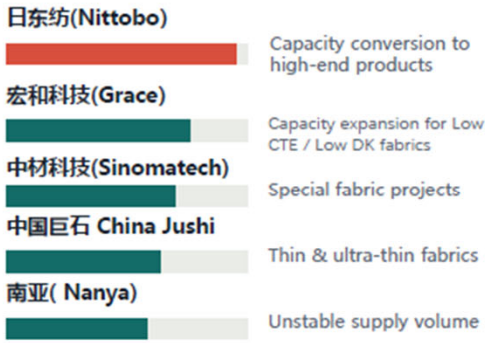
Low CTE / Low DK
Driven by demand for high-frequency & high-speed applications

→

Ultra-thin /super-thin/high-end fabric
AIHigh-end demand from AI servers, automotive electronics and other sectors

Result: Capacity for standard cloth is squeezed out, while new supply is restricted by long loom lead times, making it difficult to fill the gap in the short term.

Fiberglass Fabric Capacity Shifting to High-end Grades



- **High-end demand absorbs available production capacity, creating a structural supply shortage in standard fabric segments.**

Restricted Capacity Expansion

Severe Shortage of 106/1080/1086/3313 in Short Term

Supply is constrained simultaneously by equipment, electronic glass yarn, technical certification and capacity mix. Driven by demand for high-end PCBs, the supply gap of thin & medium prepreg (PP) has widened significantly.

18-24 months
Loom Lead Time
Bottleneck of High-end Equipment

6-9 months
Customer Qualification
High Barriers for New Manufacturers

Core Equipment Bottleneck — Supply

High-end looms such as JAT910 are critical equipment for manufacturing ultra-thin 106/1080 fabric. Global production capacity is limited, and domestic capacity expansion is restrained by long delivery schedules.

Upstream Raw Material Shortage — Raw Material

Capacity expansion of electronic glass yarn takes 2–3 years. Platinum-iridium alloy bushings (consumables for glass yarn production) are costly and in tight supply. Slow growth in electronic yarn output limits the production of fiberglass cloth.。

Soaring Demand — Demand

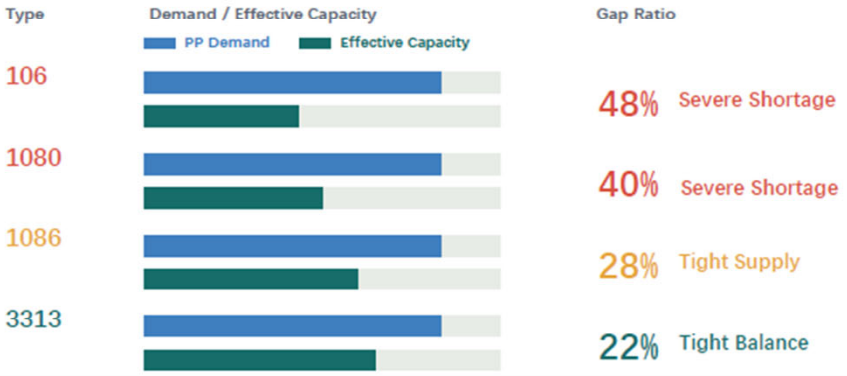
Miniaturization, lightweight design and high density drive demand for prepreg used in HDI and multi-layer boards. 5G, AI and IoT applications simultaneously boost consumption of medium-weight glass fabric.

Technical Qualification Barriers — Technology

Low-Dk and Q-grade fabrics require stable formulas, tension and temperature control. Converting production lines from standard to high-end fabrics results in a 60%–70% capacity loss.

Calculated Gap Ratio of Severe Material Shortage

Gap Ratio = (Actual PP Demand – Releasable Effective CCL Capacity) / Actual PP Demand; Demand Index = 100

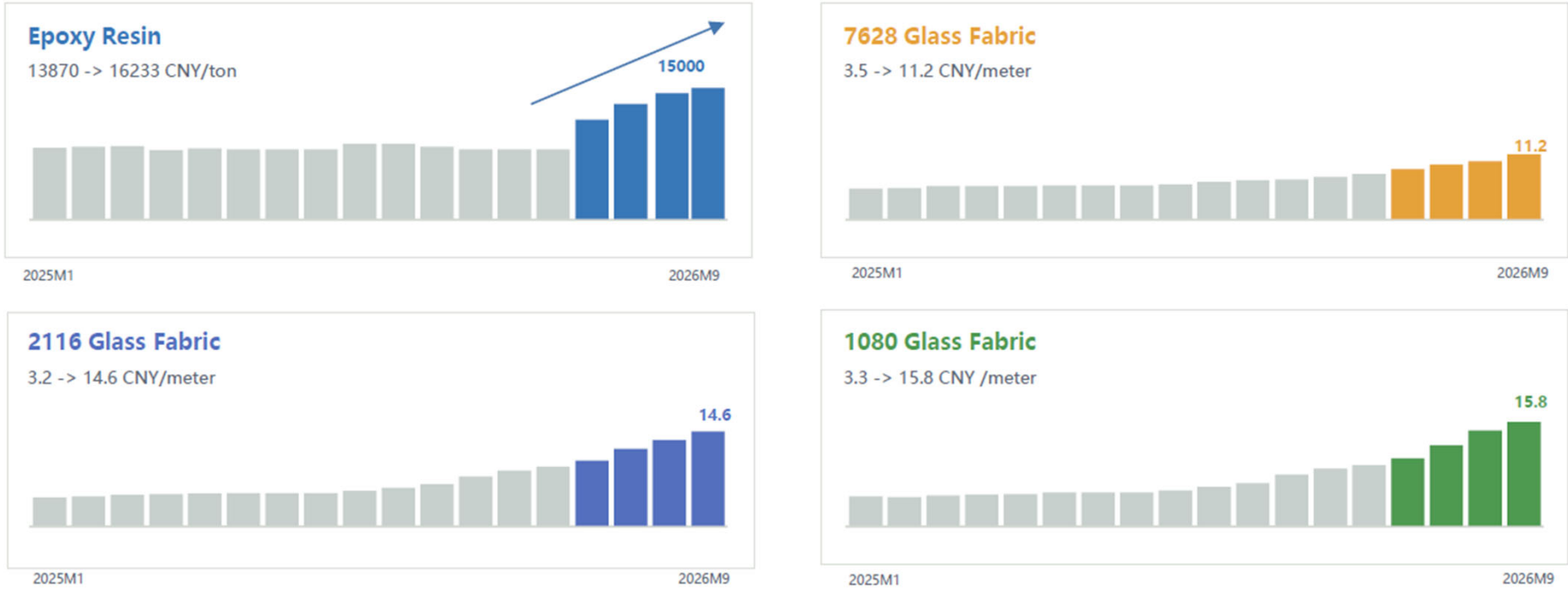


Conclusion

106 and 1080 suffer the deepest supply shortage and face severe material deficits. Driven by AI, 5G and high-end PCB demand, 1086 and 3313 are now in a tight supply range. Short-term relief hinges on the delivery schedule of high-end looms, expansion progress of electronic glass yarn and qualification timeline. No obvious supply improvement is expected within 6–12 months.

Glass Fabric Prices Enter Accelerated Uptrend in 2026

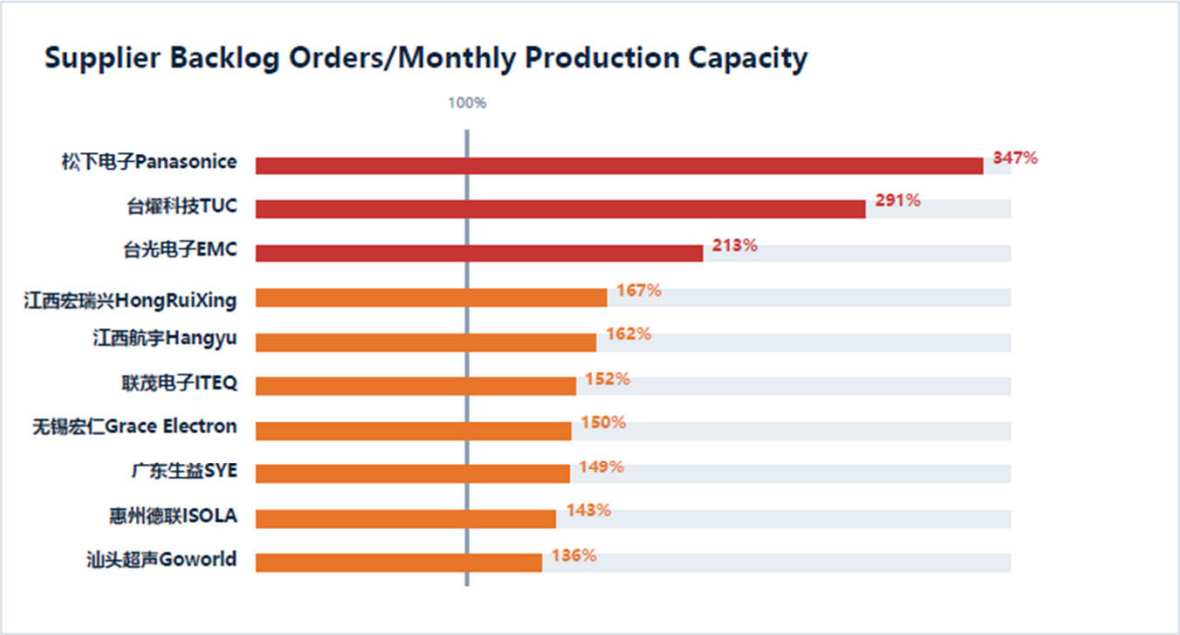
Middle East conflicts triggered resin supply disruptions, subsequent production cuts resulted from energy supply shortages



Although epoxy resin prices pulled back from peak levels, they remain above the baseline, while all three grades of glass fabric maintain an upward price trend.

CCL Production Capacity Operating Over Full Load

Major CCL suppliers are universally running over capacity, backlog orders as of May equal approximately 1.46 times monthly output capacity.



Overall Load

155%

Total backlog orders: 80.05 million sheets
Actual monthly capacity: 54.77 million sheets.

Longest Lead Time

210 Days

TUC FR4 lead time reaches 210 days, high-speed grades take 60–150 days.

Key Risk

Allocation-based Supply

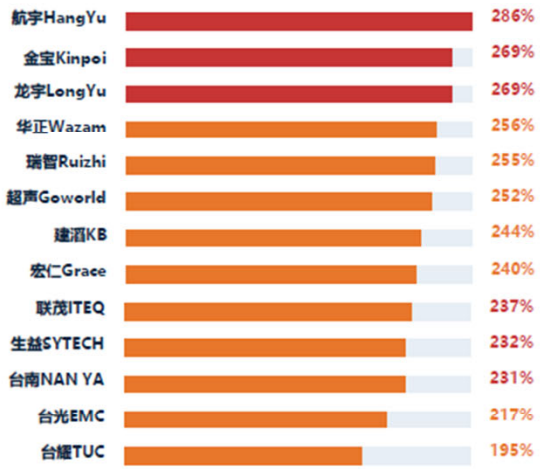
Suppliers allocate supply based on historical average volumes, making incremental order adjustments difficult.

Continuous CCL Price Rises
Cumulative Hikes Nearing Double by August

Frequent price increases are projected to continue in the second half of the year

Price hike notifications from Nov 2025 to forecasted Aug 2026 show growth nearly doubled. If monthly hikes of 15% persist, the average cumulative increase will hit 240% by Dec 2026 (forecast).

26M12F Ranking of Cumulative Price Increases



Supplier	Avg. as of Jun 2026	Avg. forecast Aug 2026	Avg. forecast Dec 2026
18	60%	95%	260%
covering major CCL producers	actual cumulative price increase	nearly doubled after announced hikes	upward trend to persist through year-end

Monthly Price Hike Heatmap

Blank = 0%
Darker color = higher single-month price increase

企业	25M1	M12	26M1	M2	M3	M4	M5	M6	M7E	M8E	M6	M8E	M12F
联茂ITEQ	6	-	-	6	-	10	11	10	13	13	51%	93%	237%
生益SYE	-	1	4	6	5	6	6	13	13	13	48%	90%	232%
超声Goworld	5	-	8	-	-	10	12	15	12	12	61%	102%	252%
金宝Kinpoi	5	-	9	-	-	15	12	12	13	13	65%	111%	269%
台光EMC	-	4	-	-	8	15	10	-	13	13	42%	81%	217%
建滔KB	8	9	-	12	-	10	12	-	10	10	62%	97%	244%
华正Wazam	6	-	8	-	-	12	12	13	12	12	62%	104%	256%
龙宇LongYu	8	-	-	7	-	12	80	-	12	12	68%	111%	269%
上南	3	-	7	-	-	9	12	-	12	12	35%	69%	195%
德联Isola	-	-	1	-	-	8	20	-	-	8	31%	41%	147%
瑞智Ruizhi	10	2	7	-	-	15	15	-	13	13	59%	103%	255%
航宇HangYu	7	-	10	-	-	12	14	15	13	13	73%	121%	286%
台南Nan Ya	7	-	-	7	-	12	11	8	11	11	54%	89%	231%
台燿TUC	-	-	4	-	-	6	15	10	10	10	39%	69%	195%
松下Panasonic	-	-	-	-	7	-	15	-	15	-	23%	42%	147%
宏仁Grace	5	-	-	8	-	11	12	10	12	12	55%	95%	240%
腾辉Ventec	-	-	-	-	8	-	10	-	10	-	19%	31%	129%
瑞烜	12	-	-	11	-	15	12	-	-	-	60%	60%	180%

High speed materials--Alterative material

Halogen | Halogen Free | Under qualification | To be qualified

Category	Df/10 GHz	Level	ITEQ	EMC	TUC	Panasonic	NOUYA	WAZAM	ShengYi	Nanya	Isola	AGC Nelco	Doosan
Std loss	> 0.018	Class 1	IT-158 IT-180A/L	EM-825/I EM-827/I EM-285 EM-370(5)	TU-668 TU-768	R-1566W/WN R-1755V/M	NY2150/M NY2170/H	H150(LF)/(LF)Z H1170/Z	S1150G S1170G S1000/H S1000-2/2M	NPG-151 NP-155F/175F	FR406/IS400 185HR/370HR	N4000-6	DS-7402H
Mid Loss	0.018- 0.012	Class 2	IT-180L IT-180I	EM-370(D) EM-370(Z) EM-390	TU-862 HF TU-747 HF TU 865			H175HF	S7045G	NPG-150N NPG-170N			DS-7402LC
	0.012- 0.009	Class 3	IT-170GT IT-170GRA/1 IT-150GS	EM-828G	TU 862 (S)	M2	NY3170M NY6180LL	H175HFZ H170GR	S7040G S7038 SML02G(X)	NPG-171	IS415		
Low Loss	0.009- 0.007	Class4	IT-170GRA2 IT-150DA IT-170GL	EM-526 EM-888 EM-888S	TU863+	M4 M4S	NY6180L NY3170M2 NT3170LK NY6200	H180HF H185HF	S7439 / HW S7439C S7439G S7045GX	NPG-170D NPG-181	FR408 FR408HR I-Speed	N4000-13 EP N4800-20	DS-7409D(X) DS-7409DXH
	0.007 - 0.006	Class5	IT-958G	EM-888K	TU-872SLKSp		NY6180					N4000-13 EP SI	DS-7409DXG
Very Low Loss	0.006 - 0.005	Class6	IT-968 IT-968G	EM-528 EM-891	TU-883 TU-883C	M6G	NY6300SL NY6300 NY6300S	H190HF H360Z H360	S6GX S6 S6(X)		TerraGreen I-TeraMT40	MW1000	DS-7409DV
	0.005 - 0.004	Class 7	IT-988G IT-988GL IT-968SE	EM626 EM-528K EM-890 EM-891K	TU-883SP TU-883A TU-933E	M6N M7GE	NY-P1	HSD7 HSD7LG	S6N S8 S8GX	NPG-199		MW2000 MW3000	DS-7409DJG
Ultra Low Loss	0.004 - 0.002	Class 7.5	IT-988GSE IT988GLSE IT-603GSE	EM626K EM-890K	TU-883ASP	M7N M7GN M7GT	NY-P2 NY-P3 NY6666N	HSD7(K) HSD7LG(K) HSD7JA(K) H350K	S8GN S8NE	NPG-199K	Tachyon-100G	MW4000	DS-7409DV(N) DS7409DV(NT) DS-7409DJGN
Extreme low loss	0.002 - 0.0012	Class8	IT-998GSE	EM-892K	TU943SN TU943HN	M8N M8S(N)		HSD8(K) HSD8(K) (C)	S9N S9GN	NPG-199HK	Tachyon-400G	MW8000 MW6600	DS-7409 DQN
	<0.0012	Class8.5	IT998 IT-998GSE2	EM-892K2	TU943HR	M8(U) M8S(U)	NY-P4 NY-P4(C)	HSD8 HSD8(C)	S9N2 S9GN2	NPG-199HK2	Tachyon-400G2	ELL12	DS-7409 DQN2
Supreme Low Loss	<0.0007	Class9	IT999GSE3	EM-896K3	TU953Q	R2M9HA(QF)	NY-P5		S10GQ				DS-7409DYQ

OUTLOOK

Supportive actions that NCAB is taking

1. **Proactively communicate rapidly changing situation** to customers (lead times, allocations, material supply risks), so we can review schedules, discuss needs and prioritize when needed.
2. **Secure material allocation upstream (not just price):** actively lock base materials (CCL, copper foil, prepreg) via commitments and coordinated purchasing, since availability is the dominant risk.
3. **NCAB leadership teams – constant presence in our factories:** in China monthly, meeting with key partners to help safeguard allocation and capacity based on historical & forecasted run rates.
4. **Tri-party meetings key laminate manufactures and factories:** to help safeguard supply through supporting allocation agreements and understand the market outlook.



5. **Approve alternative materials/brands/stack-ups** with customers in advance (dual-approved laminates, be open on stack ups), as acceptance of alternative materials / brands is key.
6. **Pre-payment support with selected partner factories**: Necessary for achieving prioritization of supply from laminate manufacturers.
7. **Design-for-supply-chain actions:** support customer DFM/DFSC reviews to reduce exposure (e.g., reduce HDI complexity where possible, avoid constrained constructions) and limit risk of yield losses through working in alignment with related Design Guidelines.
8. **Multisourcing strategy:** qualify secondary factories / regions for standard products to reduce dependency on Tier-1 factories absorbed by AI programs.
9. **Production slot protection via stronger commitments:** leverage our long-term relationships & commercial position to ensure we get our "unfair share" of allocation materials.
10. **Enhanced expediting and schedule control:** more Factory Management team members in factories, monitoring NCAB priorities with tighter order tracking, milestone check-ins, material availability checks and faster escalation paths to contain lead-time slips as reliability deteriorates.
11. **Logistics contingency planning:** pre-plan alternative modes and routing options (e.g., air vs. sea, rerouting) and communicate cost/schedule trade-offs early.



PCB SUPPLY CHAIN OUTLOOK October 2026

Thank you!

Want to know more? Visit **www.ncabgroup.com**