

UGPCB ELECTRONICS CO., LIMITED

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Core enterprises in the field of semiconductor testing

Solutions to the technologies and products that are restricting the development of China's semiconductor industry.

Founded in July 2014, UG is a vertically integrated technology enterprise specializing in end-to-end PCB solutions encompassing design, fabrication, PCBA assembly, and nano-scale plasma protective coatings via PECVD technology. With core competencies in high-end PCB manufacturing, our flagship product lines—ATE boards, MLO substrates, and HDI interposers—serve critical roles in semiconductor testing and advanced chip packaging applications.

Positioned as an innovation-driven industry benchmark, UG is committed to establishing itself as a global exemplar of premium, high-reliability PCB manufacturing for next-generation electronics.

Values

Customer-oriented, value-based, continuous improvement, and innovative research and development

Mission

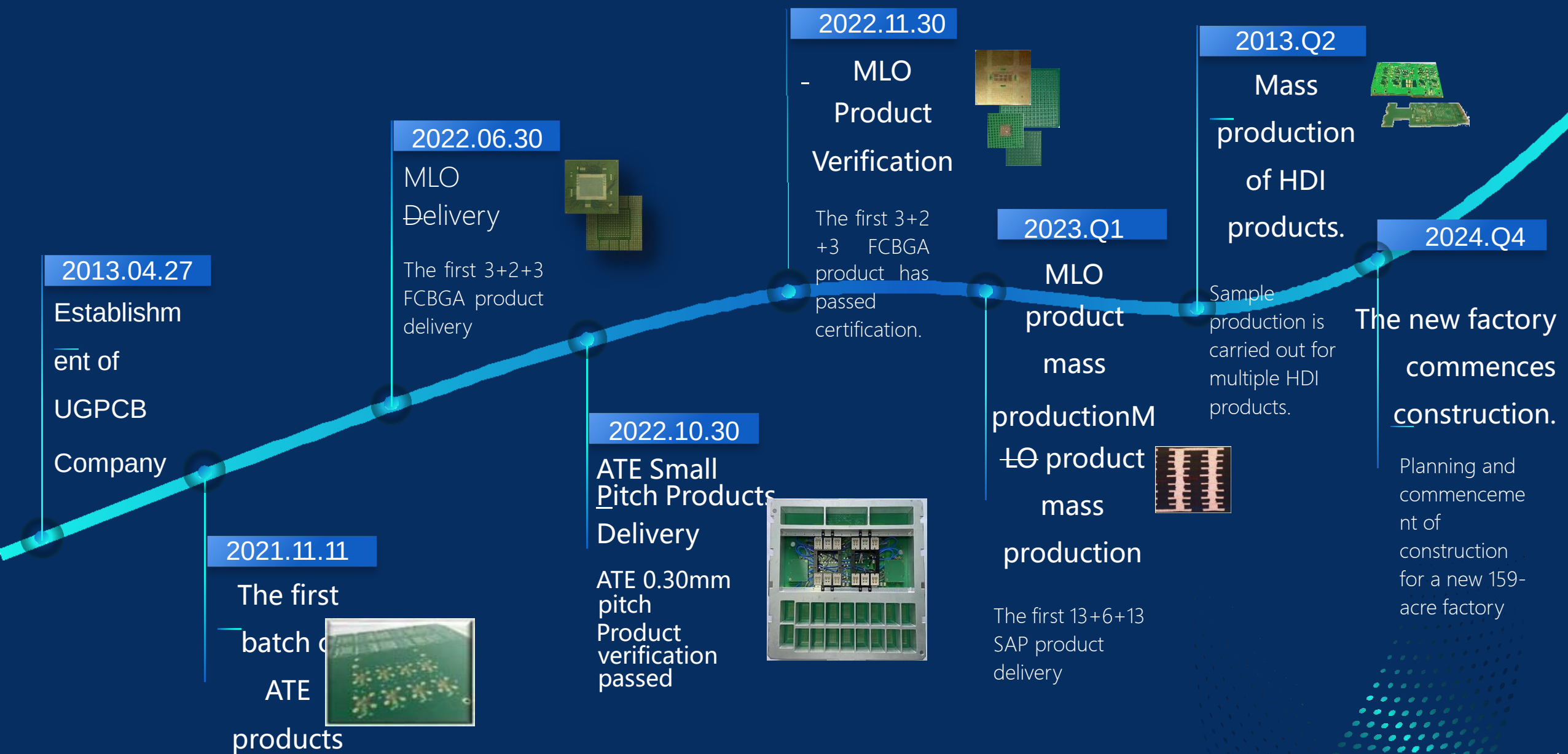
The pioneers of PCB, PCBA, and the Chip Era

Vision

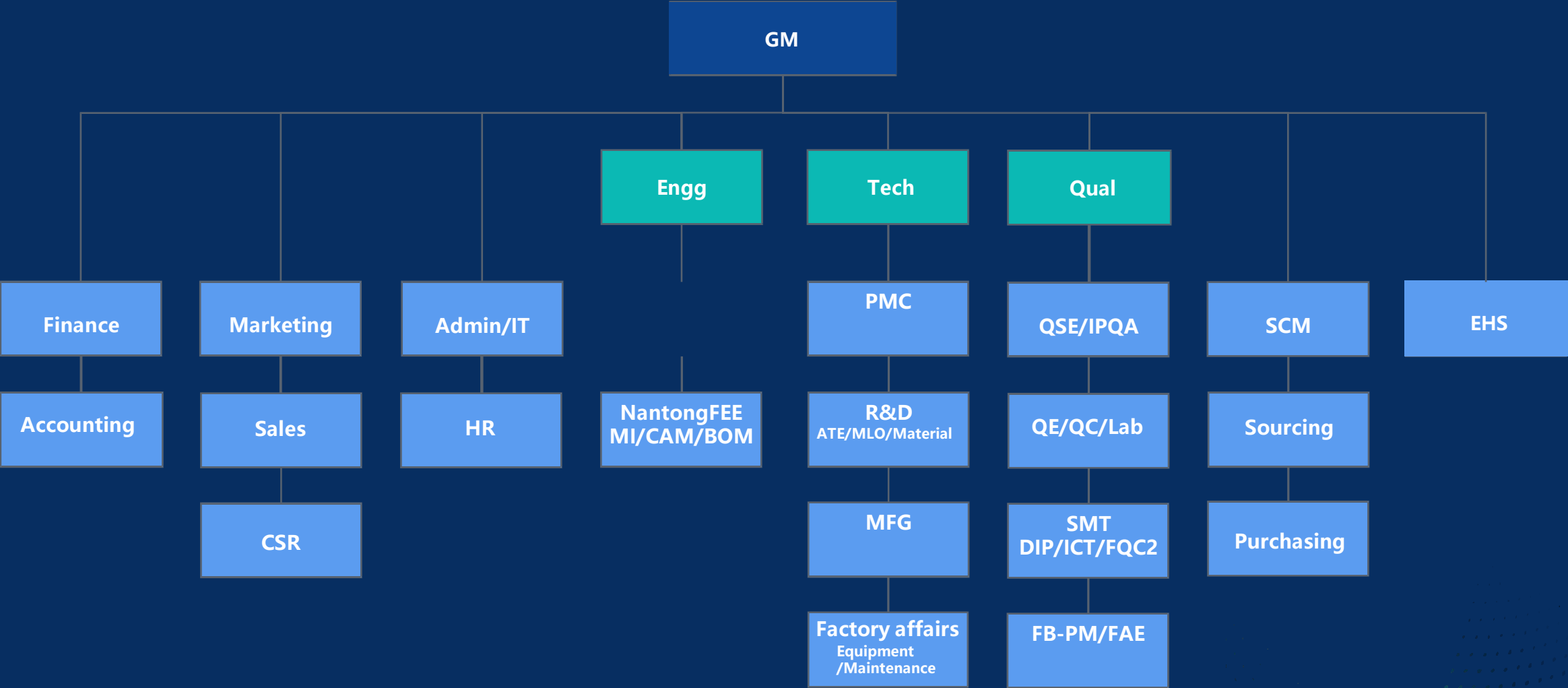
Create the most valuable and creative world-class semiconductor demonstration integrator.



01/ The Development Course of UGPCB



01/ Company Profile (Organizational Chart of the Company)



Product Distribution

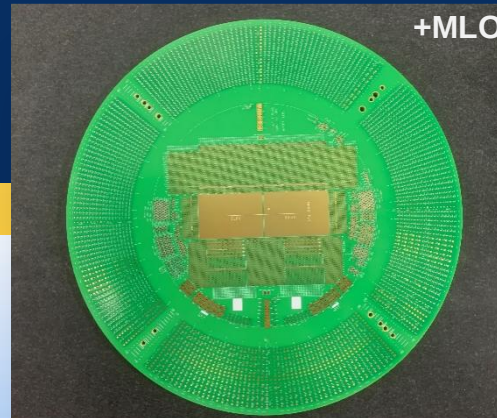
We have extensive production experience in the well-known ATE test machine platforms in the semiconductor testing field, including Advantest, Teradyne, Accotest, and other testing models such as:

3380P

ETS88

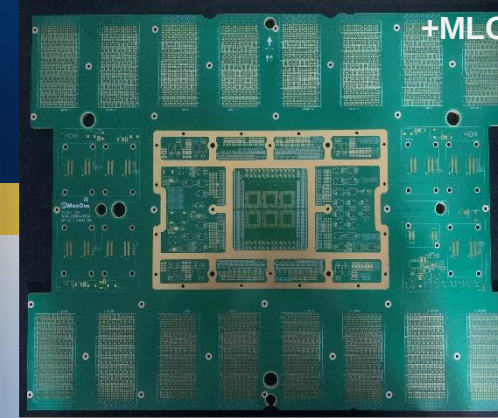
Domestic ST series

CP (Probe Card)



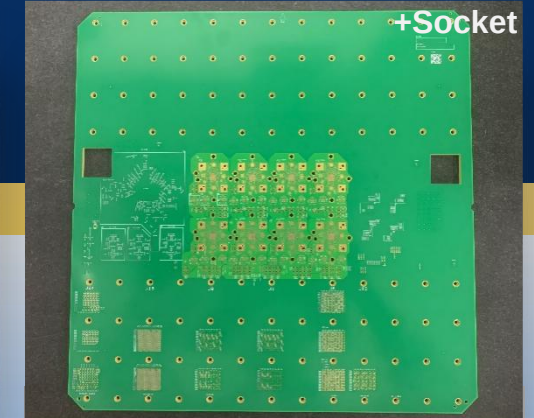
STS8200
STS8250
STS8300.
STS8203
S200

CP (Load Board)



V93KDD.
V5400
T2000.
T5500
T5830.
T5833
T5335

FT (Load Board)



Ultra Flex
V93KDD.
J750 HD/EX.
Magnum 2

02/ Technical Capabilities (Processing Capacity Comparison)

ITEM/时间	2022				2023				2024				2025				2026			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
ATE Pitch	0.35mm.				0.30mm.				0.27mm.				0.25mm				Less than 0.25mm			
ATE Line width spacing	1.8/2mil.				1.5/1.5mil				1.5/1.5mil				1/1.5mil							
ATE Back drilling	D+4.				D+3.				D+2											
ATE Aspect ratio	40:1.				53:1.				60:1.				79:1							
Surface treatment	Gold Plating/Immersion Gold				Thickened gold				ENEPIG											
MLO C4 Pitch*	≥110um.				≥80um.				≥50um				≥45 um				<45 um			
MLO C4 pad size*	≥80um.				≥60um.				≥40um				≥35um							
MLO Laser via dia.*	≥65um.				≥45um.				≥35um.				≥25um				≥ 15um			
MLO Dielectric thickness*	≥35um.				≥20um.				≥15um.				≥ 10um							
MLO Line/Space*	18/18um.				12/12um.				8/8um				6/6um				5/5 um			
MLO Core layer M (N+M+N)	≤6.				≤8.				≤16				≤32							
MLO BU layer N (N+M+N)	≤3.				≤5.				≤7.				≤11				≤13			
HDI Any layer	二.				Any layer.															

Technical abilities:  :Achieved Technology

Top in the industry



Internationally leading

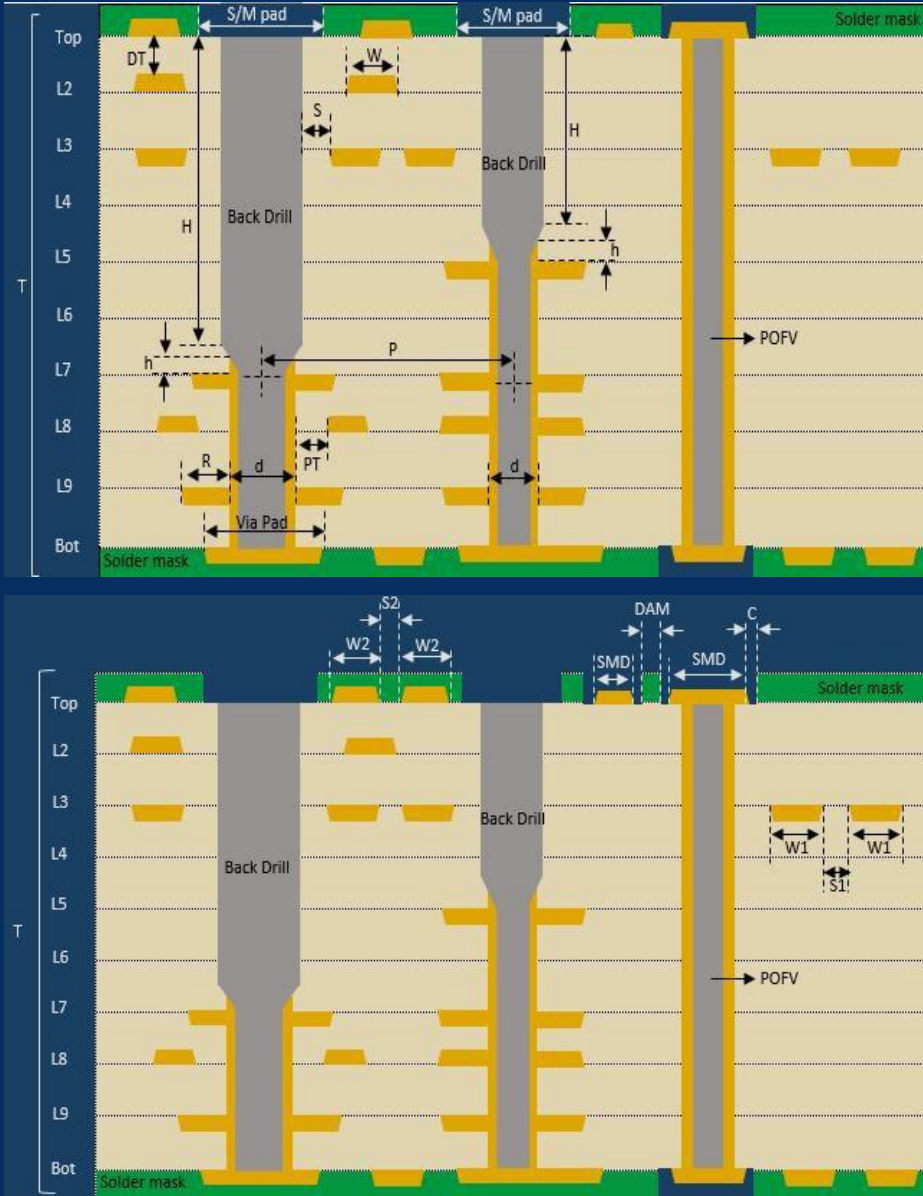


Domestic leader



02/ Technical Capability (ATE Processing Capacity)

Item		Sym	Description	Standard	Advanced	Engineering
PCB	Basic	--	Layer Count (Layers)	66	80	120
		--	Max. Board Size (mm)	530 x 685 (21" x 27")	530 x 685 (21" x 27")	610 x 915 (24" x 36")
		T	Board Thickness (mm)	8	10	12
		--	Thickness Tolerance (%)	±7	±5	±4
		B&T	Warp and Twist (%)	0.3	0.2	0.2
	Lam	DT	Min Dielectric Thickness (mm)	0.05	0.025	0.025
		--	Materials	FR-4, HTg, Low DK/DF		PTFE, PI
	Through Vias Hole	d	Min. Mech. Drilled hole size (D (mm)	0.125	0.1	0.1
		PT	Drill to Copper (mm)	0.075	0.063	0.05
		p	Min. DUT Pitch (mm)	0.35mm/Ø0.125 Thick 7.0mm	0.30mm/Ø0.10 Thick 5.5mm	0.26mm/Ø0.10 Thick 3.8mm
		--	Max. Aspect Ratio (PTH)	44 : 1	53 : 1	70 : 1
		--	Min. PTH size Tol. (mm)	±0.075	±0.050	±0.050
		--	Min. NPTH size Tol. (mm)	±0.05	±0.025	±0.015
	Back Drilling	BD	Back Drill (mm)	D+0.10	D+0.075	D+0.05
		--	Back Drill Depth Tol. (mm)	±0.10	±0.075	±0.050
	Laser Vias Hole	e	Min. Laser Drill size (mm)	0.075	0.050	0.035
		--	Max. Aspect Ratio (Laser Drill)	1:1	1:1	1.5:1

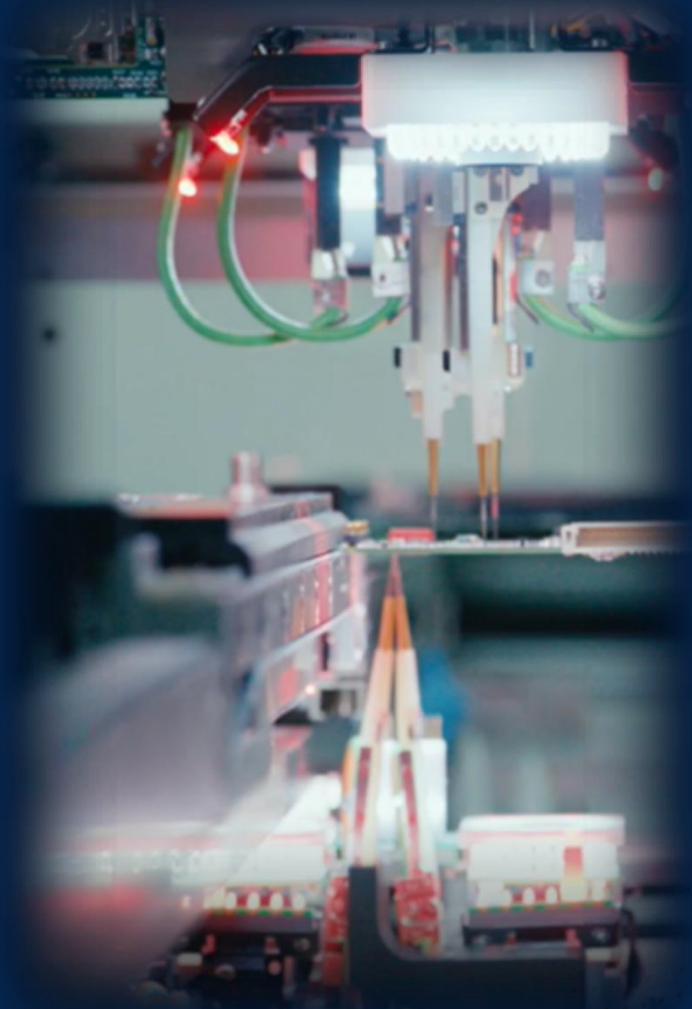


02/ Technical Capability (Processing Capacity)



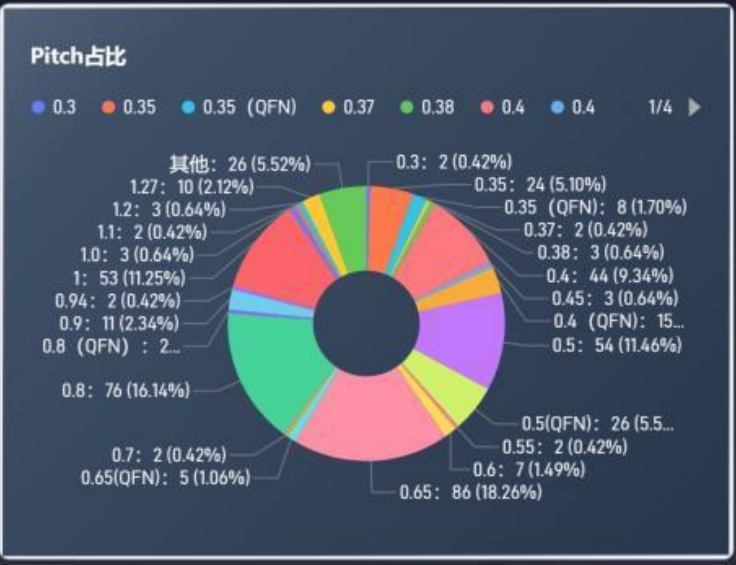
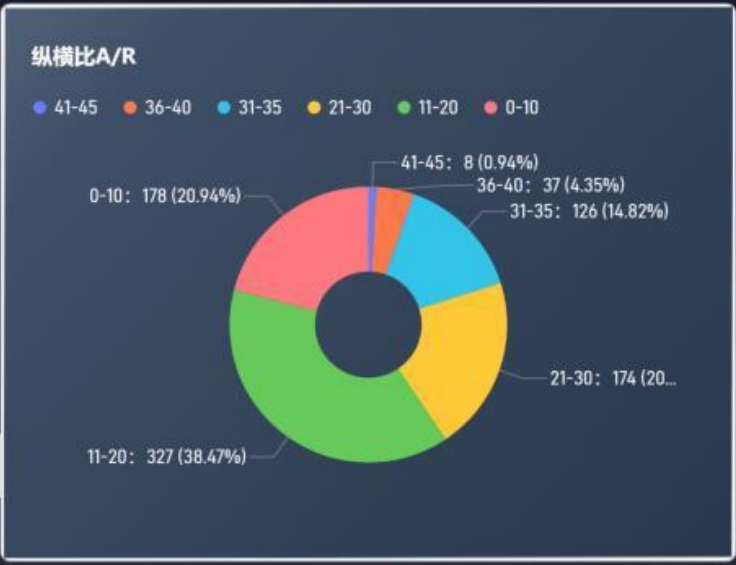
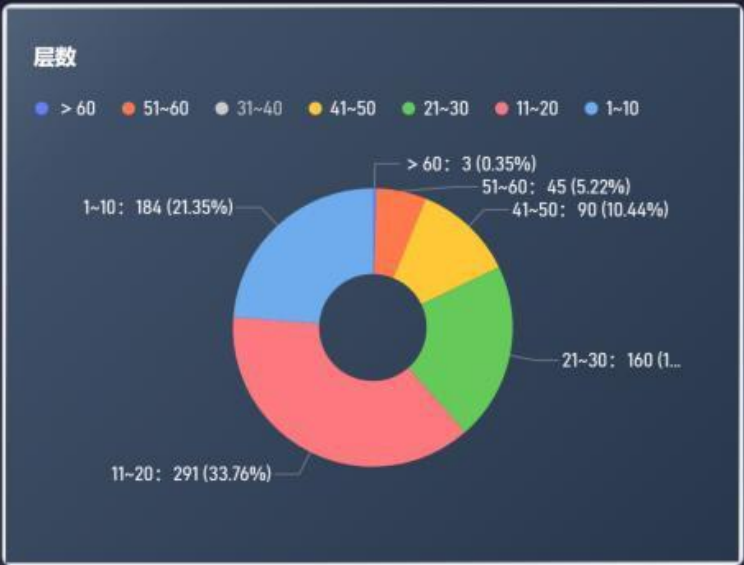
Item		Sym.	Description		Standard	Advanced	Engineering
PCB	Fine line (width/space)	W1/S1	Min. inner layer Line Width/Space (mm)	0.5oz	0.063 / 0.063	0.050 / 0.038	0.033 / 0.025
				1oz	0.1 / 0.1	0.075 / 0.075	0.075 / 0.0625
				2oz	0.15 / 0.15	0.15 / 0.15	0.125 / 0.125
		W2/S2	Min. outer layer Line Width/Space (mm)	1oz	0.1 / 0.1	0.075 / 0.075	0.075 / 0.050
				2oz	0.15 / 0.15	0.125 / 0.125	0.125 / 0.125
	Solder Mask	D	LDI Soldermask DAM (mm)		0.075	0.063	0.063
	POFV	--	Conductive & Non-Conductive Via Fill		Yes	Yes	Yes
	Impedance control	--	Inner Layer		±7%	±7%	±5%
		--	Outer Layer		±10%	±8%	±7%
	Surface Finishing	--	ENIG (um)	Au	0.03 ~ 0.07	0.7 ~ 1.27	0.7 ~ 1.27

Item		Description	Capability	Accuracy
SMT	Manufacturing Capabilities	Board Dimension	50x50mm~560x650mm (0.6~10mm thickness)	NIL
		Solderpaste Printing	LxWxH ratio 60%~160%	±25um
		Surface Mount	01005	±35um
		IR Reflow	13 temp zone	±1.0℃
	Quality Control Capabilities	3D SPI	Optical	±10μm
		2D AOI	Optical	±12μm
		FAI	C : 0.01nF ~ 99.9mF L : 0.01pH ~ 99.9KH R : 10μΩ ~ 99.999MΩ	±0.05%
		ICT	C : 0.5pF ~ 1F L : 1μH ~ 1H R : 1mΩ ~ 1GΩ	C =2%~7% L =1%~7% R =1%~4%

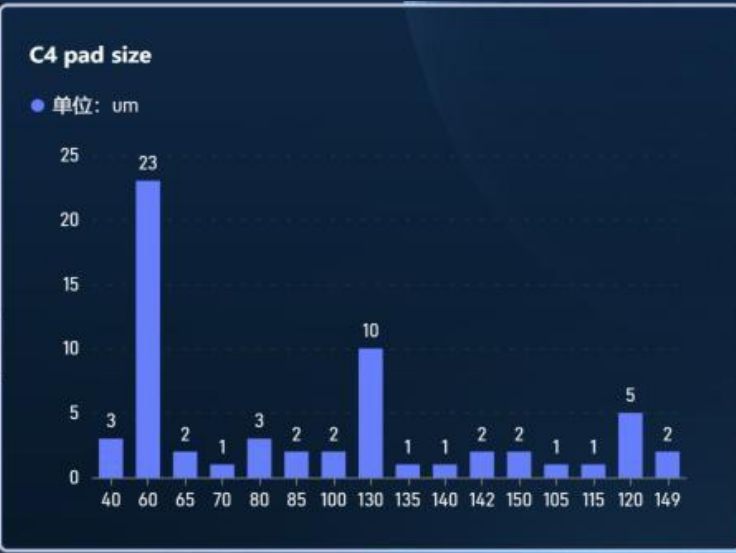
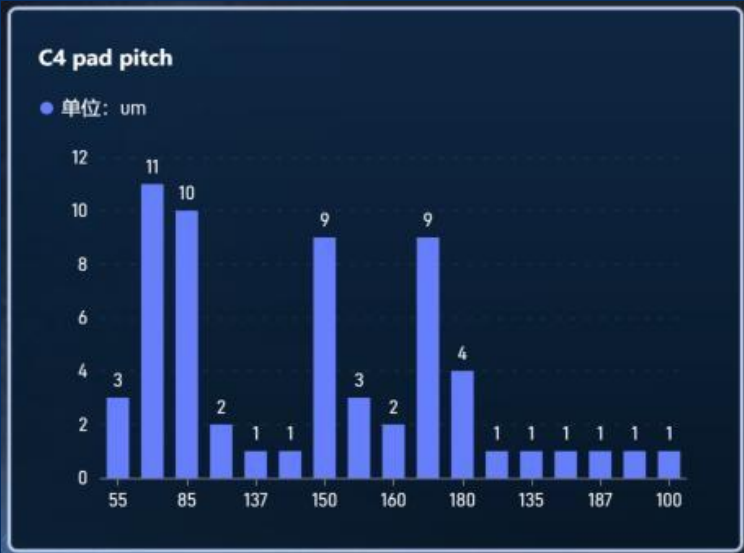


02/ Technical Capability (Technical Kanban)

ATE

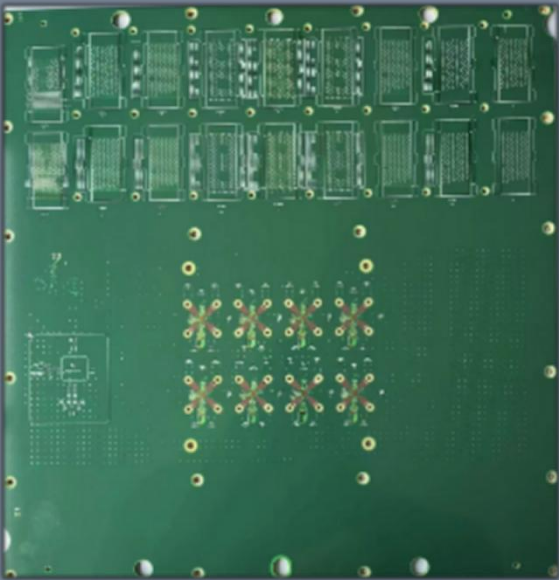


MLO

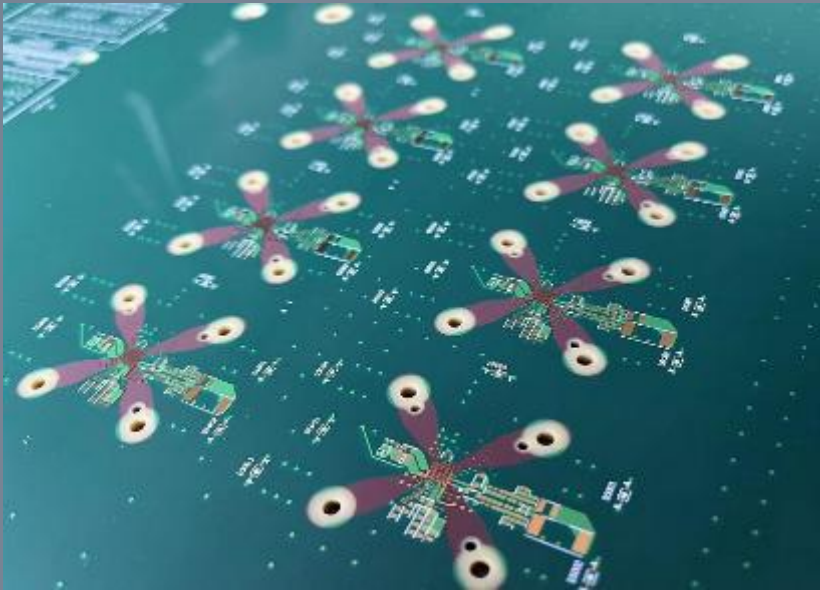
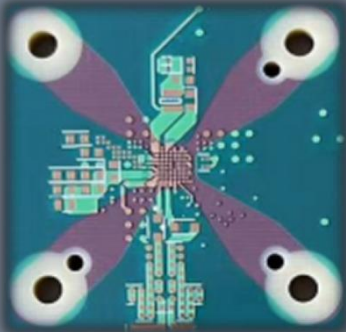


03/ Product Display (ATE)

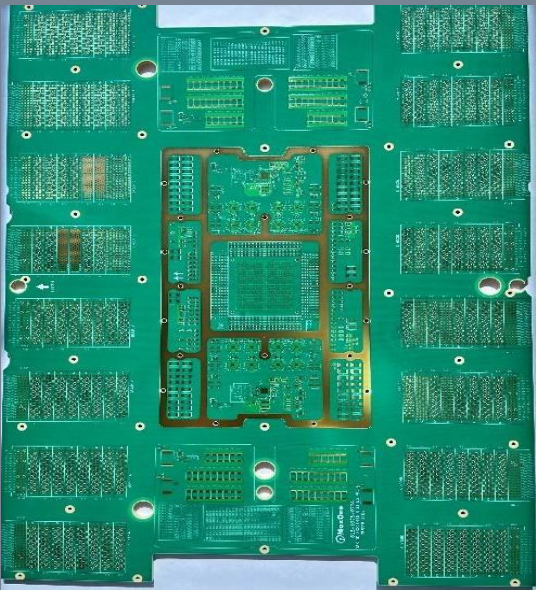
Layer	50 Layer
Size	17.2" x 17.8"
Thickness	198 mil
Material	FR4 HTg
Min. Hole	5 mil
BGA Pitch	0.35mm
Aspect Ratio	40:1
Drill to Metal	3 mil
POFV	Yes
Surface	ENEG



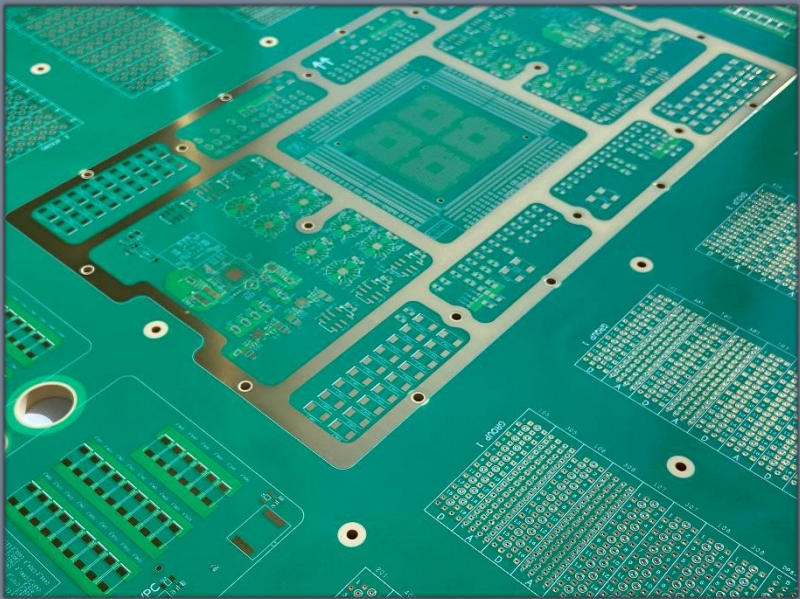
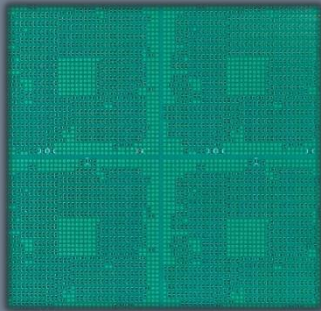
BGA Pitch	0.35mm
Pad Size	0.25mm
Drill Size	0.13mm
Min POFV	0.13mm



Layer	62 Layer
Size	16.9" x 22.9"
Thickness	250 mil
Material	FR4 HTg
Min. Hole	8 mil
BGA Pitch	0.65mm
Aspect Ratio	32:1
Drill to Metal	7 mil
POFV	Yes
Back Drilling	Yes
Surface	ENEG

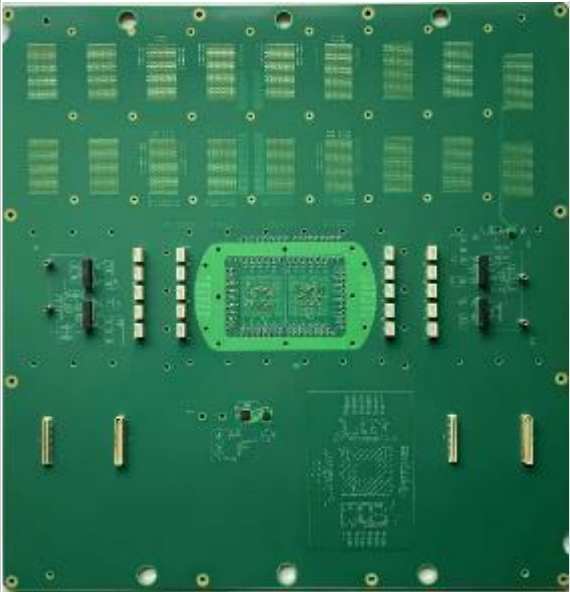


BGA Pitch	0.65mm
Pad Size	0.32mm
Drill Size	0.2mm
Back Drill	D+0.07mm
Min POFV	0.2mm

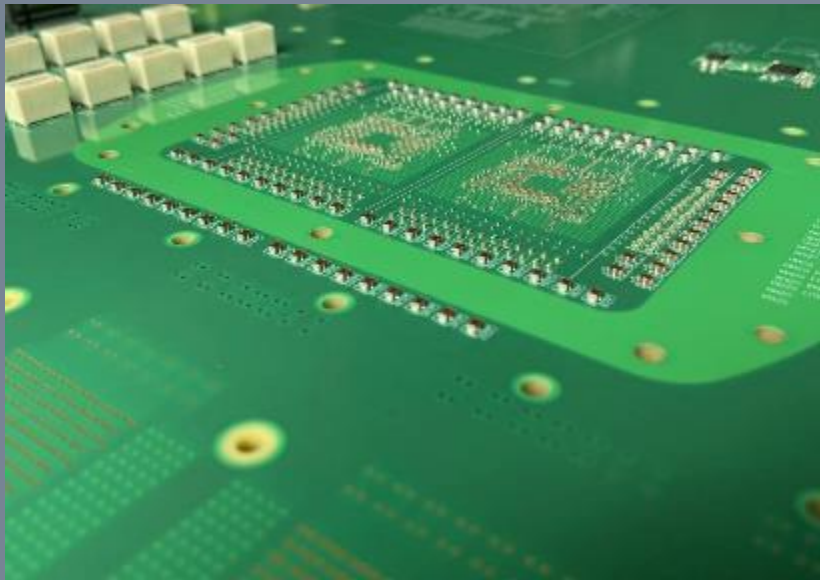
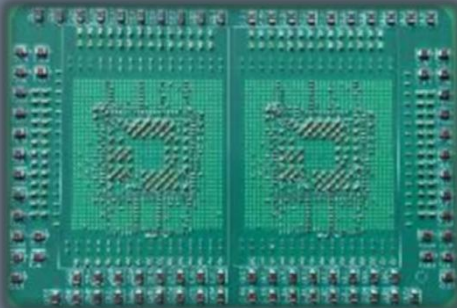


03/ Product Display (SMT)

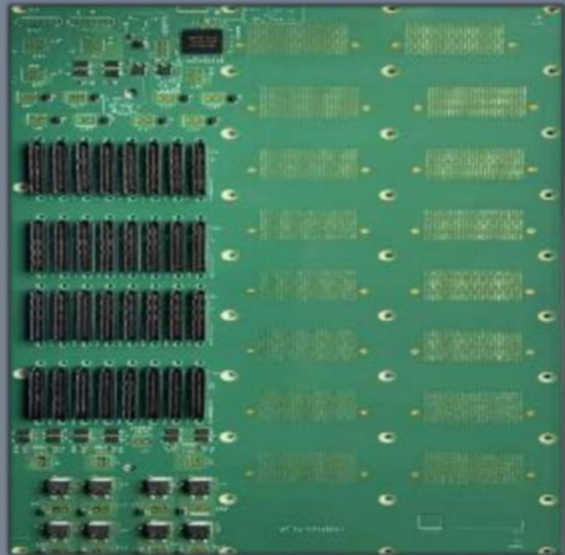
Layer	58 Layer
Size	17.2" x 17.8"
Thickness	230 mil
Material	FR4 Tg185
Min. Hole	5 mil
BGA Pitch	0.8mm
Aspect Ratio	23.4:1
Drill to Metal	7 mil
POFV	Yes
Back Drilling	No
Surface	ENEG+TG +ENIG



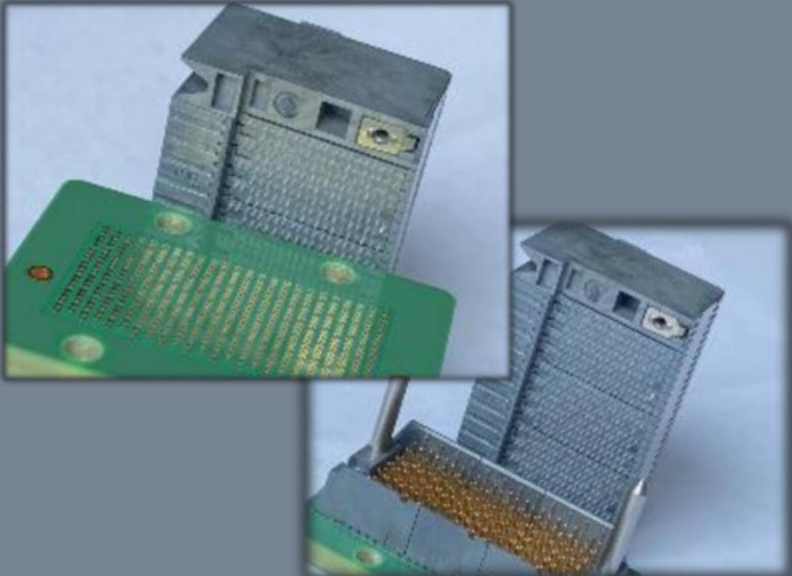
Auto mode	
Component Size	01005
Yield Ratio	40ppm
POP (pitch)+	0.35mm



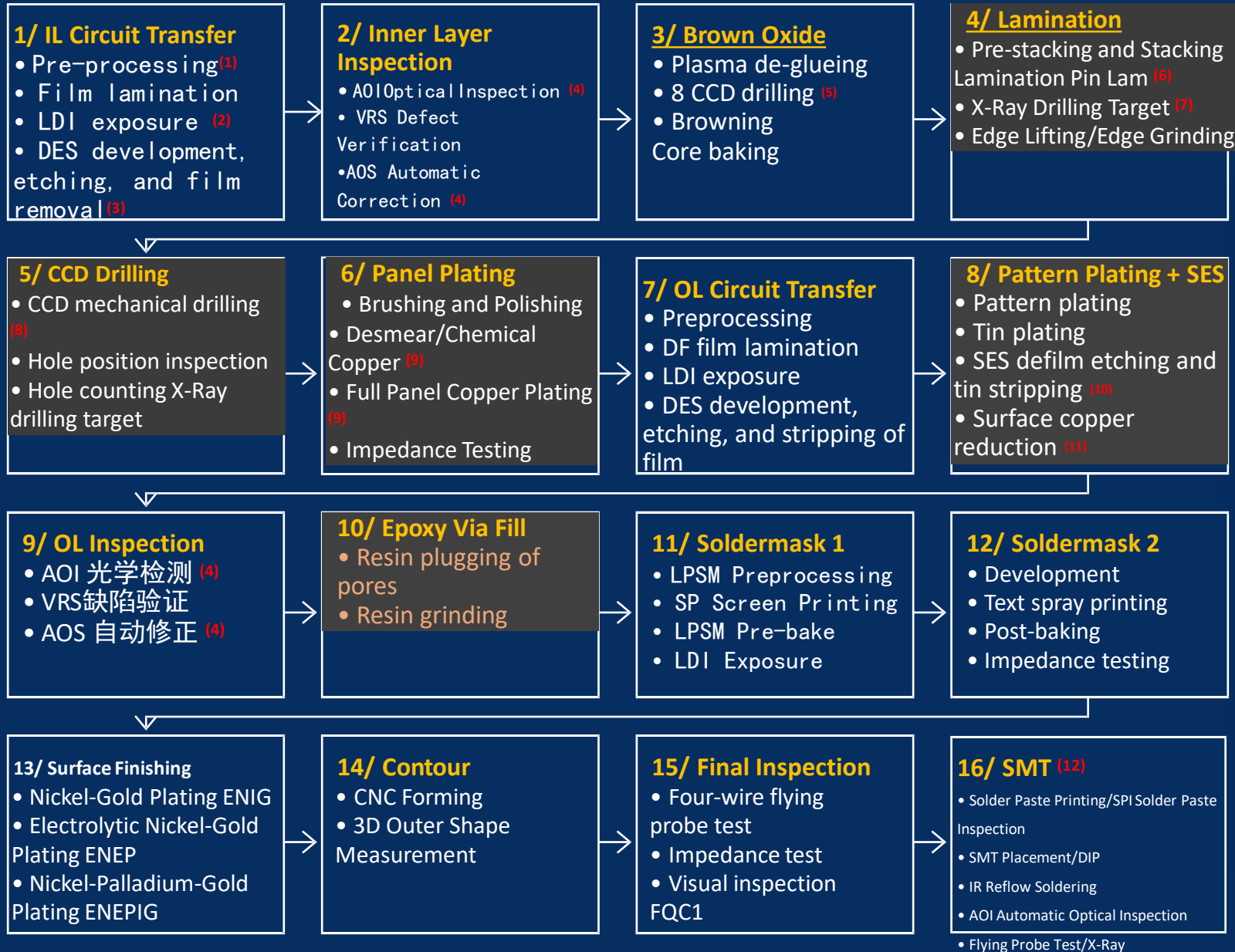
Layer	40 Layer
Size	9.65" x 16.5"
Thickness	177 mils
Material	FR4 Tg185
Pad Size	0.35mm
BGA Pitch	0.8mm
Aspect Ratio	18:1
Drill to Metal	4 mil
POFV	Yes
Back Drill	D+0.095mm
Countersink	Yes
Surface	ENIG



Manual Mode	
Fisheye terminal crimping	444pin
Clinching process	M2~M5
Manual stacking capability	0201
Maintenance Capability	01005



04/ Technical Capability (Production Process)



- Key technical process
- Critical Engineering Process

04/ Production equipment



Inner layer DES development, etching, and stripping line ⁽¹⁾



LDI exposure machine * ⁽²⁾



Outer layer DES development etching and defilming * ⁽³⁾



AOI optical inspection + AOS automatic correction ⁽⁴⁾



8 CCD punching * ⁽⁵⁾



Pressing Pin Lam * ⁽⁶⁾



X-Ray drilling target ⁽⁷⁾



CCD mechanical drilling * ⁽⁸⁾



Graphical electroplated copper-tin wire ⁽⁹⁾



SES Film Etching and Tin Stripping Line ⁽¹⁰⁾



Reduced copper wire ⁽¹¹⁾



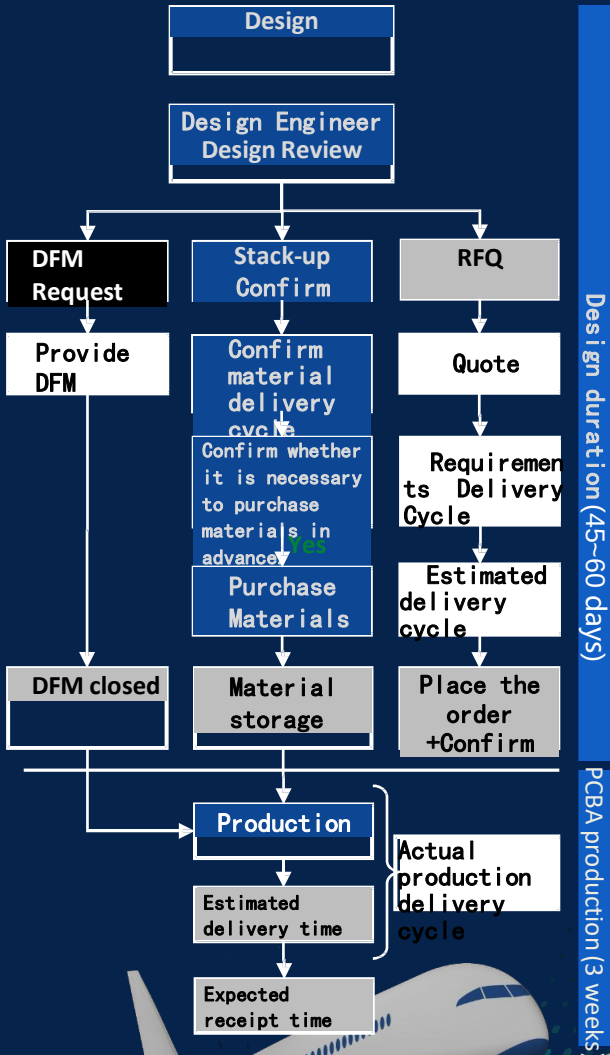
SMT assembly line * ⁽¹²⁾

Customized high-end equipment to ensure product manufacturing and quality

ATE Production cycle (Lead Time)				
Items	Standard (workday)	Hot Run (workday)	Qty (panel)	Remark
floor number<50L	13	7	≤6	
Back Drill	+0.5	+0.5		
Resin filled hole POFV	+1	+0.5		
Thickened gold plating	+0.5	+0		Au thickness : 30u"
Electroplated gold	+0.5	+0		
Laser (1+N+1)	+3	+2		For each additional order of Laser, the time is multiplied by 2.

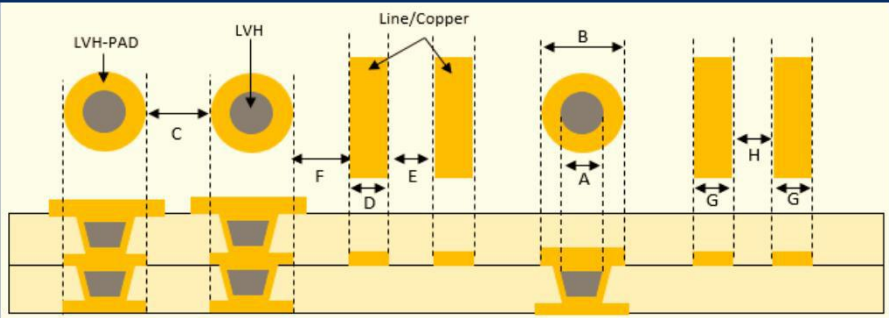
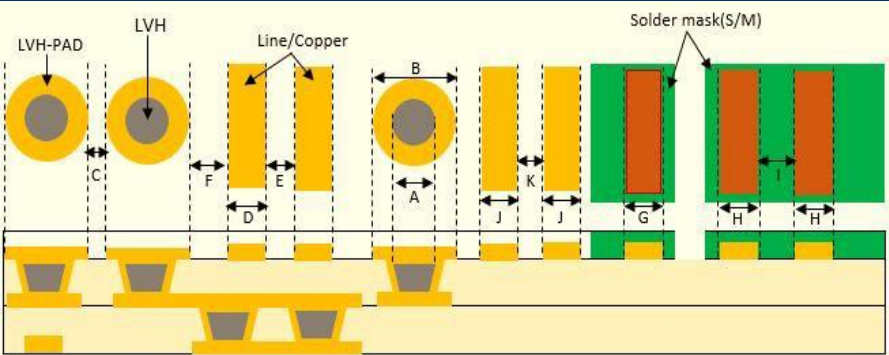
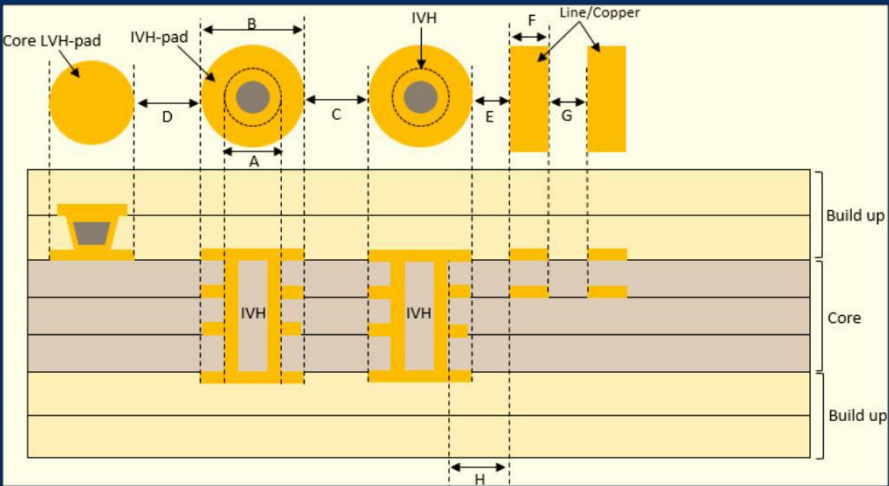
SMT Production cycle (Lead Time)			
Items	Standard (workday)	QTA (workday)	Qty (panel)
SMT (Single-sided assembly)	2	1	Comp≤1000, DIP≤30
SMT (double-sided assembly)	3	2	Comp≤1500, DIP≤30

- £ Multiple technical attributes may affect the delivery cycle.
- £ The current delivery cycle is based on the inventory status of materials.



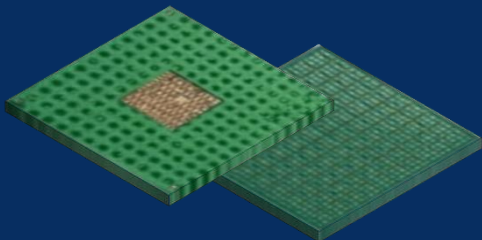
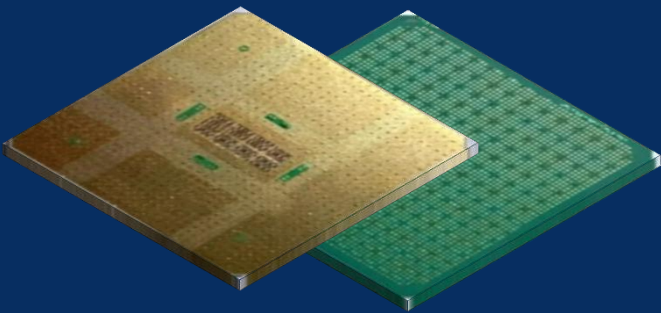
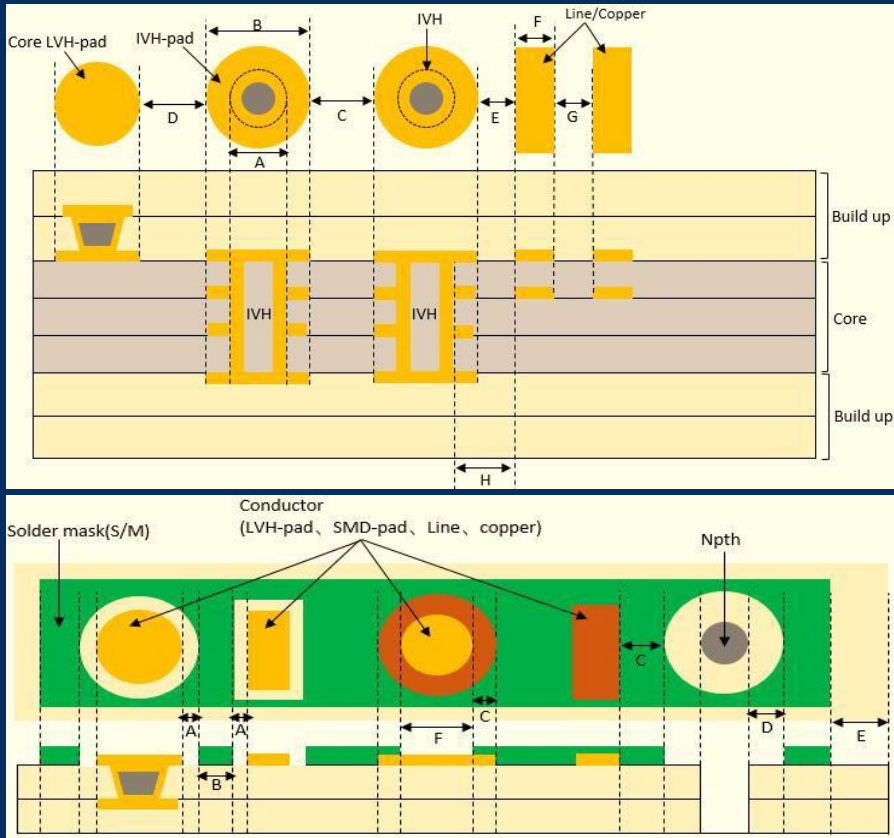
06/ Technical Capability (MLO Processing Capacity)

Item	Sym	Description	Standard	Advanced	Engineering
Applicable Condition	--	# of Build up layer (one side)	≤5	≤8	≤13
	--	Substrate Size (mm)	≤50x50mm	≤75x75mm	≤100x100mm
	--	Core layer Thickness (mm)	≥0.8	≥0.4	≥0.2
	T	Board Thickness (mm)	≤3.0mm+/-0.3mm		
Surface Finished		Hard Gold (Au thickness : um)	≤1.0um	≤2.0um	---
		ENIG (Au thickness : um)	≤0.05um	≤0.08um	---
Outer Layer (DUT side)		Pitch of C4 PAD(um)	80	60	55
	A	Min LVH size (um)	60	40	25
	B	Min LVH - pad (circle pad) (um)	LVH+40	LVH+30	LVH+20
	D	Min Line Width (um)	20	15	12
	C	Min Pad Space (circle pad) (um)	20	15	12
	E	Min Line/Copper Space (um)	20	15	12
	F	Min Pad to Line (um)	20	15	12
	F	Min Pad to Copper (um)	20	15	12
Inner Layer - Plated Inner Copper	A	Min LVH size (um)	60	40	25
		Max LVH-pad stacks	3 stacks	5 stacks	7 stacks
	B	Min LVH - pad (um)	LVH+40	LVH+30	LVH+20
	D	Min Line Width (um)	25	18	15
	C	Min Pad Space (um)	35	25	15
	E	Min Line/Copper Space (um)	45	30	15
	F	Min Pad to Line (um)	25	18	15
	F	Min Pad to Copper (um)	45	30	20

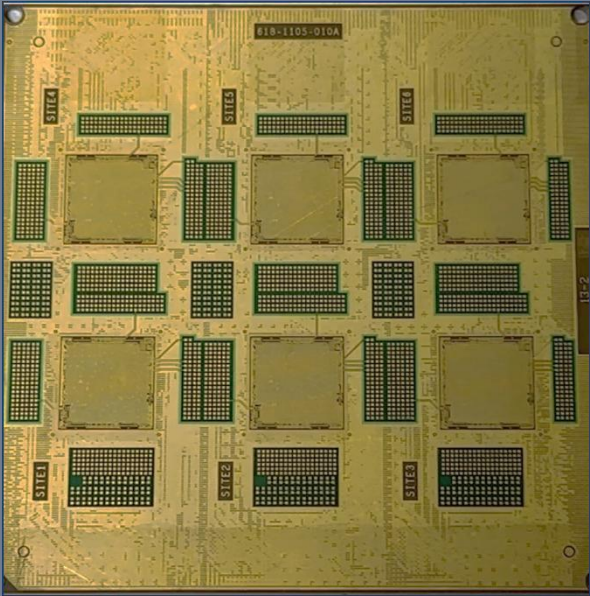


06/ Technical Capability (MLO Processing Capacity)

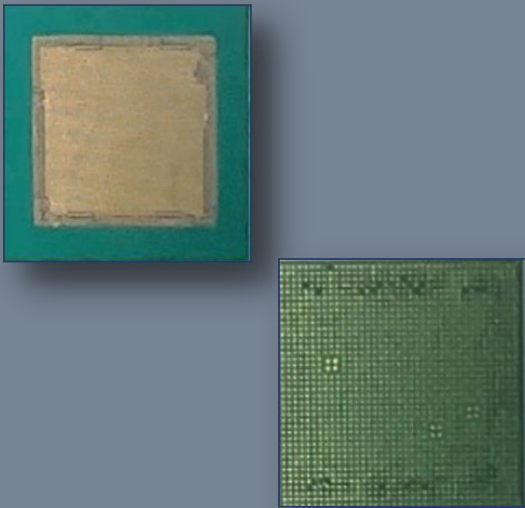
Item	Sym	Description	Standard	Advanced	Engineering
Inner Layer-Plated Inner Core (IVH) Pitch 0.3mm	A	Min IVH drill size (um)	50	40	25
	B	Min IVH - pad (um)	IVH+200	IVH+150	IVH+100
	F	Min Line Width 1/2oz (um)	65	50	35
	C	Min IVH - pad Space (um)	75	50	35
	D	Min IVH - pad to LVH-pad (um)	75	50	35
	E	Min IVH - pad to Line (um)	65	50	35
	E	Min IVH - pad to Copper (um)	100	75	50
	G	Min Line/Cu Space 1/2oz (um)	65	50	35
Solder Mask	A	Min Clearance (um)	50	38	25
	B	Min DAM (um)	75	50	35
	C	Min S/M on conductor (um)	50	50	25
	D	Min Clearance to NPTH (um)	200	150	100
	E	Min Clearance to Outline (um)	250	200	100
	F	Min S/M open (um)	85	85	50



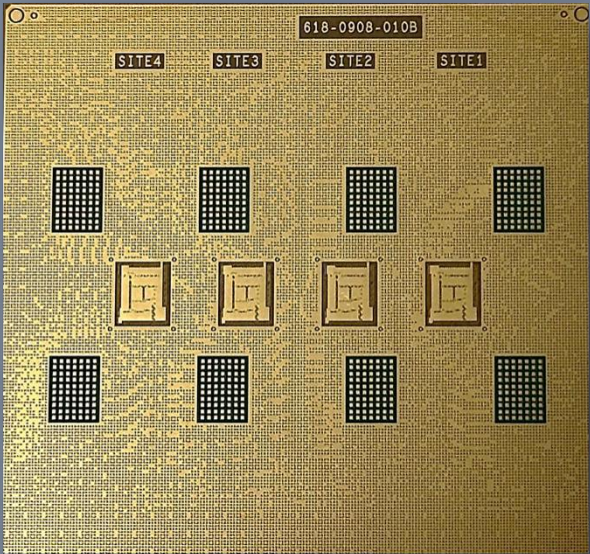
Layer	32 (13+6+13)
Size	70*70
Thickness	1.2
Material	BT+ABF
Min. Via	35
L/S	20/23
C4 Pitch	80
Position	+/-6.3um
Flatness	50/75



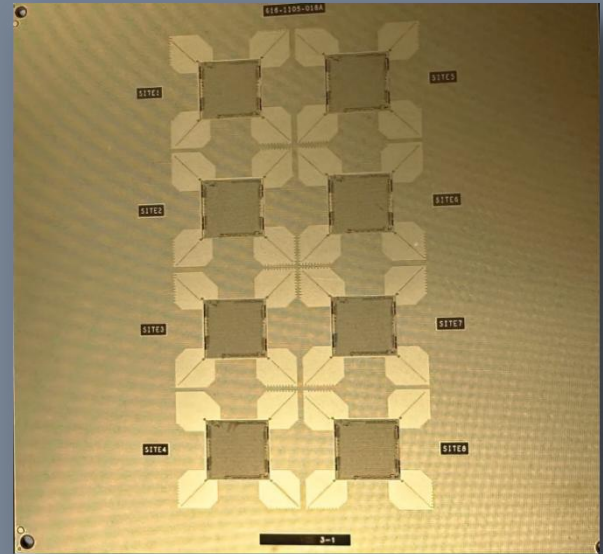
Layer	12
Size	14*14
Thickness	1.0
Material	BT+ABF
Min. Via	35
L/S	12/12
C4 Pitch	80
Position	+/-5um
Flatness	15/25



Layer	20
Size	50*50
Thickness	0.99
Material	BT+ABF
Min. Via	25
L/S	18/18
C4 Pitch	55
Position	+/-6.3um
Flatness	40/75



Layer	8 (3+2+3)
Size	100*100
Thickness	1.35
Material	BT+ABF
Min. Via	40
L/S	30/30
C4 Pitch	80
Position	+/-6.3um
Flatness	40/75

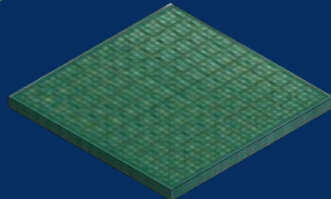
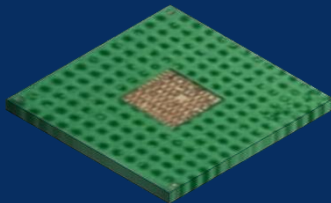
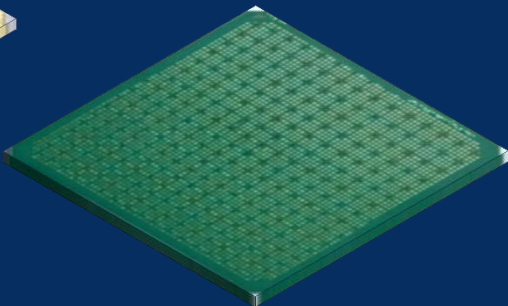
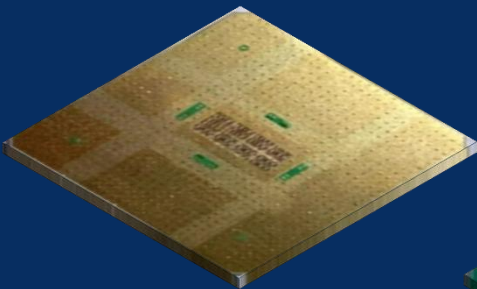


UGPCB has already possessed the processing capability of ABF substrate/FC-BGA packaging technology, and has been recognized by upstream customers.

Tech Terms	Capability
LVH	30um
Pitch spacing	80um
Mechanical embedding hole size	100um
Mechanical buried hole spacing	130um
A/R Dimensions	10um
Line width	12um
Line spacing	12um
edge-edge Cu	15um
LVH-Edge	65um



13+6+13 Cross-sectional view

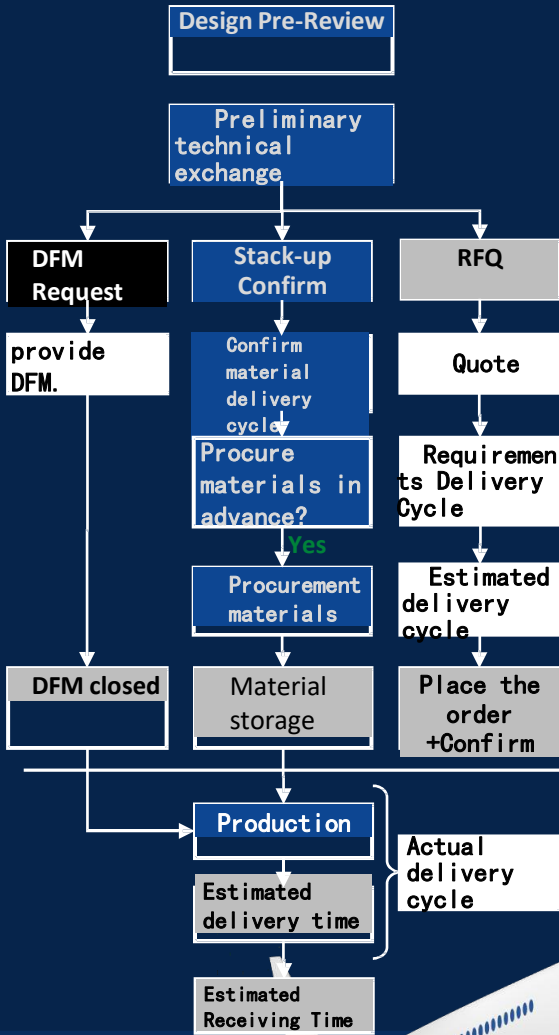


Production cycle :

MLO Production cycle (Lead Time)

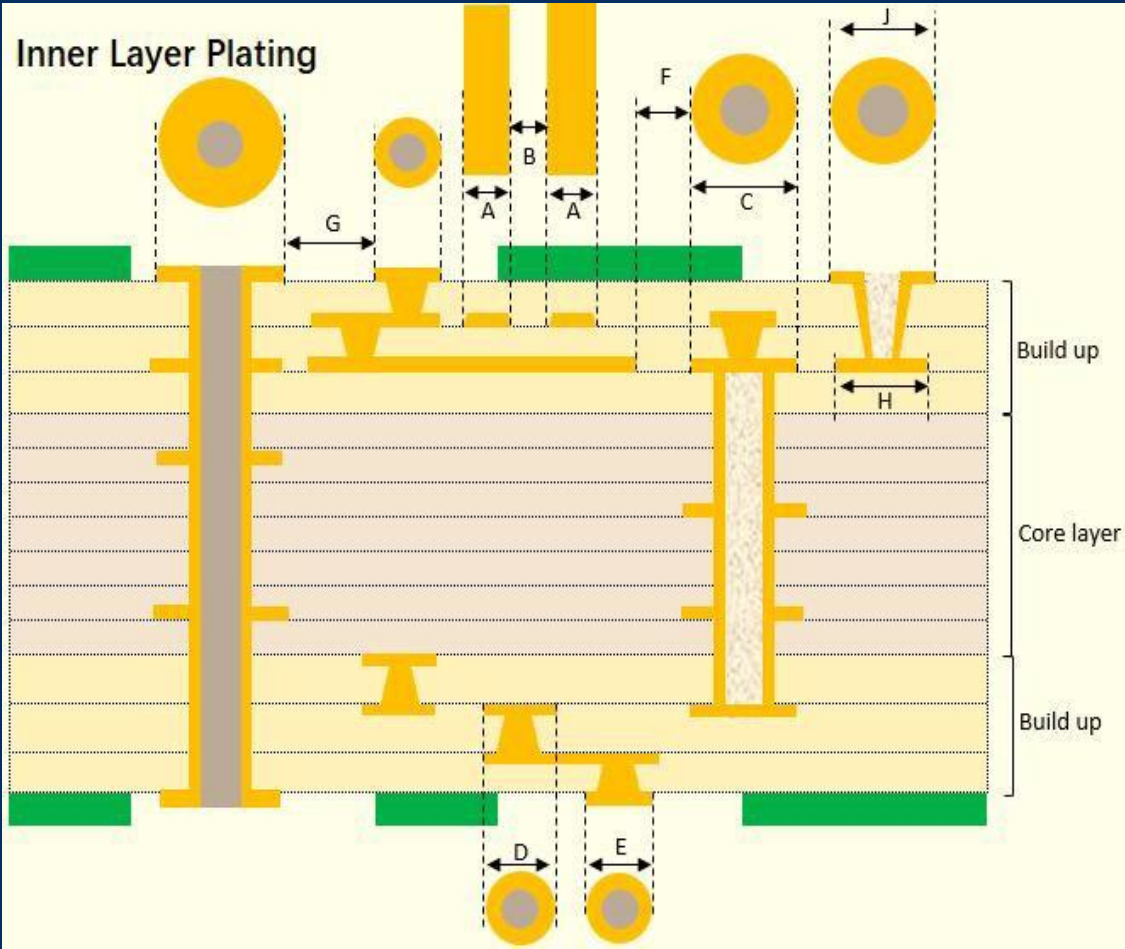
Core layers	BU Layers	Estimated production cycle (Working days)
2~32	2	22
	3	27
	4	30
	5	33
	6	36
	7	39
	8	42
	9...	45...

- £ Lead Time is based on the approval and closure of DFM.
- £ Multiple technical attributes may affect the planned production cycle.
- £ The above Lead Time is based on the inventory having all BOM materials.
- £ The actual Lead Time is subject to PO confirmation.



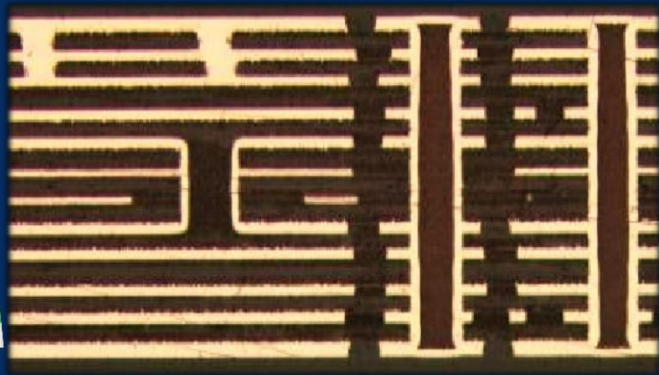
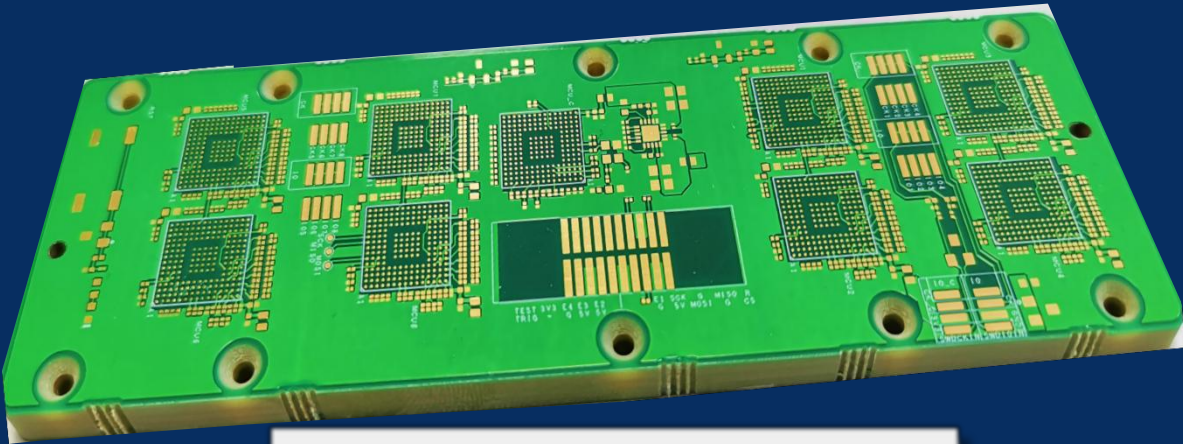
07/ Technical Capability (HDI Processing Capacity)

	Standard	Advanced	Engineering
A / B:(Trace / Gap)(um)(X=Copper thickness)			
X≤15	50/50	40/40	40/40
X≤23	63.5/55	50/50	50/45
X≤33	63.5/75	63.5/63.5	63.5/50
30< X ≤40	75/75	63.5/63.5	63.5/63.5
C: Buried hole target pad	Buried hole+250	Buried hole+200	Buried hole+150
D:Laser target pad	Laser+200	Laser+150	Laser+100
E:Laser capture pad	Laser+200	Laser+150	Laser+100
F:Inner layer space	50	50	40
G:Outer layer space	50	50	40
H:Skip via target pad	Laser+250	Laser+200	Laser+150
J:Skip via Capture pad	Laser+250	Laser+200	Laser+150
Max. Aspect Ratio (Laser Drill)	0.8:1	1:1	1.5:1
Min. Laser Drill size (mm)	0.1	0.075	0.06



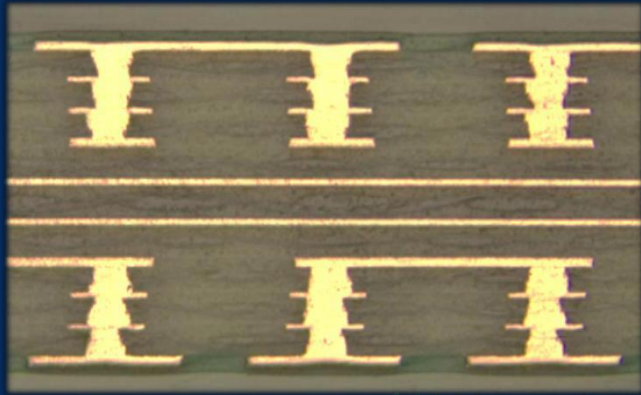
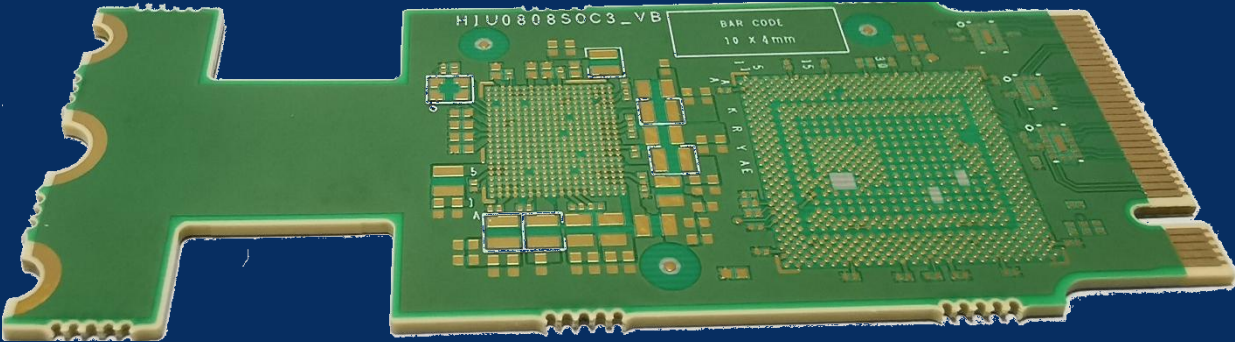
- Critical Engineering Capability

Layer	12 Layer
Stack up	2+8+2
PCS Size	152*134mm
Thickness	5.0mm
Material	FR4 HTg
Min. Hole	0.2mm
Min. Laser	0.1mm
POFV	Yes
Surface	ENEG



12LActual product + cross-sectional view

Layer	10 Layer
Stack up	3+4+3
PCS Size	117*120mm
Thickness	0.8mm
Material	M7
Min. Hole	0.15mm
Min. Laser	0.1mm
POFV	Yes
Surface	ENEG

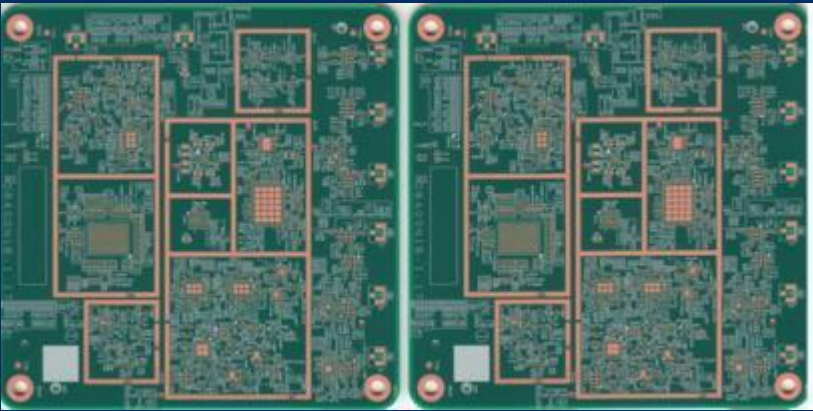


10L actual product

- The delivery cycle of Laser products shall refer to that of ATE products.

07/ Product Display (HDI)

Layer	16 Layer
Stack up	7+2+7
PCS Size	76*85mm
Thickness	1.5mm
Material	High Tg
Min. Hole	0.15mm
Min. Laser	0.1mm
POFV	Yes
Surface	OSP

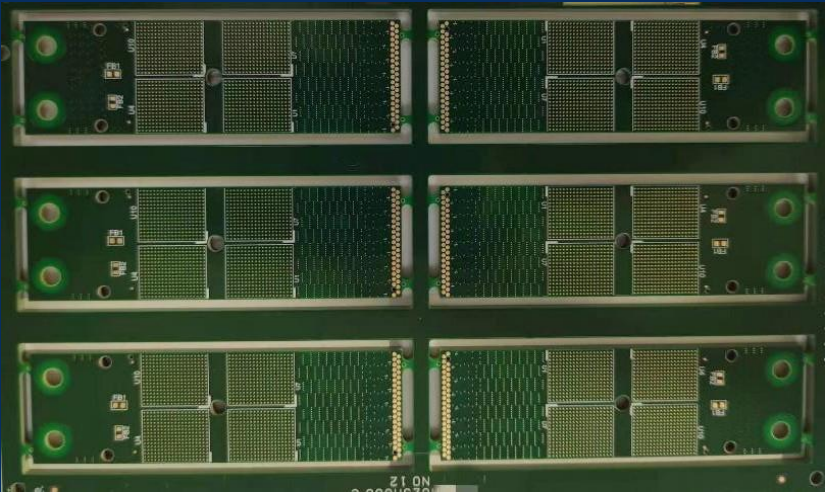


16L AnylayerActual product + cross-sectional view

L1	Top	Cu Foil + Plating
L2	Gnd	EM-890K - 1078(65%) PP+1
L3	Sig1	Cu Foil + Plating
L4	Gnd	EM-890K - 1078(65%) PP+1
L5	Sig2	Cu Foil + Plating
L6	Gnd	EM-890K - 1078(65%) PP+1
L7	Gnd	Cu Foil + Plating
L8	Gnd	EM-890K - 1078(65%) PP+1
L9	Gnd	Cu Foil + Plating
L10	Pwr2	EM-890K - 1078(65%) PP+1
L11	Gnd	Cu Foil + Plating
L12	Sig3	EM-890K - 1078(65%) PP+1
L13	Gnd	Cu Foil + Plating
L14	Sig4	EM-890K - 1078(65%) PP+1
L15	Gnd	Cu Foil + Plating
L16	Bottom	EM-890K - 1078(65%) PP+1



Layer	24 Layer
Stack up	5+14+5
PCS Size	113*38mm
Thickness	2.4mm
Material	High Tg
Min. Hole	0.2mm
Min. Laser	0.1mm
POFV	Yes
Surface	ENIG



24L10L actual product

Lyr	Image	Foil	Thk
comp		0.33oz	0.47
comp-12		0.33oz	2.16
comp-13		0.33oz	0.85
comp-14		0.33oz	3.36
comp-15		0.33oz	0.85
comp-16		0.33oz	2.11
comp-17		0.33oz	0.85
comp-18		0.33oz	2.07
comp-19		0.33oz	3.00
comp-20		0.33oz	2.11
comp-21		0.33oz	3.00
comp-22		0.33oz	6.05
comp-23		0.33oz	5.00
comp-24		0.33oz	5.18
comp-25		0.33oz	5.00
comp-26		0.33oz	5.18
comp-27		0.33oz	5.00
comp-28		0.33oz	6.05
comp-29		0.33oz	3.00
comp-30		0.33oz	2.11
comp-31		0.33oz	3.00
comp-32		0.33oz	2.13
comp-33		0.33oz	0.85
comp-34		0.33oz	2.14
comp-35		0.33oz	0.85
comp-36		0.33oz	2.13
comp-37		0.33oz	0.85
comp-38		0.33oz	3.36
comp-39		0.33oz	0.85
comp-40		0.33oz	2.18
comp-41		0.33oz	0.47

• Laser The delivery cycle of Laser products shall refer to that of ATE products.

Thanks For Your Attention

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