

The information below details some of the key capabilities that NCAB Group can offer and support today. You will find information here relating to the specific materials we can support, the PCB technologies or product types which we currently produce, as well as some of the tolerances which we can achieve.

The first category is what we call “standard” and means we can offer each individual parameters from multiple sources. The second is our “advanced” offering, and this shows the very best that NCAB can offer, but here the supply chain or sourcing options are limited and in some cases this means that only one plant is capable of this parameter.

When using combinations of these parameters, you should always consult your local NCAB technical contact person.

Feature	2021		2022	2023
	Standard	Advanced		
Materials Please contact NCAB Group for full details regarding material availability.	RIGID: FR2, CEM-1, CEM-3, FR4 (standard – halogen free – high performance) Hydrocarbon including: ShengYi, Iteq, Elite Materials Corp., NanYa, Kingboard, Grace, GoWorld, TUC, Meteorwave, Synamic, HTE FLEX: PI, PET, PSA,SUS,LPISM,Silver ink and Carbon ink Metal dome, Underfill glue Include:Taiflex, Dupont FR & AP, Panasonic, ShengYi, Doosan. Thinflex, Hanwha, EMI film IMS: IMS Al based Include: Bergquist MP, HT & CML ITEQ T-Lam, Laird TLAM SS Taiflex, Dupont FR & AP, Panasonic, ShengYi, Doosan.	RIGID: Mid-Loss material: TUC TU862HF, EMC EM370D, ITEQ IT170GRA, Panasonic Megtron-2 Low-Loss material: N4000-13(series), FR408HR, Megtron-4, S7038, S7439, TU872SLK (series), EM-828, EM888, N4800-20(series), I-Speed, NPG-170D Ultra Low-Loss material Megtron-6, IT150DA, FX-2, FL-700, I-Tera, N6800-22(series), RO4350B, RO3000(series), RF-35, RF-35A2, TLX (series), AD250, FL-700LD, TU-883 & TU-883 Sp, NPG-186 Super Low – Loss material and High Thermal Reliability Laminate: TU993,M6N,M7N, EM-890K, RO4003C, Tachyon100G, Astra MT77, EM-528K, RT5000(series), RT6000(series), TMM(series) FLEX: PI, LCP Include: Dupont, Copper-nickel alloy, Conformal coating IMS: IMS Al & Cu based Include: Bergquist HPL, Ventec VT, Polytronics TCB, Doosan DST, Denka, Arlon, Chin-Shi	‘Advanced’ materials becoming more mainstream across the supply base.	‘Advanced’ materials becoming more mainstream across the supply base.
Minimum dielectric thickness	0.05mm for PCB 0.025mm for FPC	0.025mm for PCB 0.012mm for FPC	≤0.05mm for PCB 0.01mm for FPC	≤0.05mm for PCB 0.01mm for FPC
Layer count	1 - 38L / 56L QTA	64L (pilot runs)	64L (pilot runs)	70L (pilot runs)
HDI / Buried – blind via	Y	Y	Y	Y
Copper filled BVH (Y/N)	Y	Y	Y	Y
Copper filled PTH (Y/N)	Y	Y - copper paste	Y - copper paste	Y - copper paste
Copper paste filled PTH (Y/N)	Y	Y	Y	Y
Capped via (Y/N)	Y	Y	Y	Y
LDI (Y/N)	Y	Y	Y	Y
Maximum board size (mm)	1050 X 610	1400 X 610	1400 X 610	1400 X 610
Minimum board thickness (mm) 2L	0.15mm for PCB 0.05mm for 1L FPC 0.12mm for 2L FPC	0.15mm for PCB 0.05mm for 1L FPC 0.12mm for 2L FPC	0.15mm for PCB 0.05mm for 1L FPC 0.12mm for 2L FPC	0.15mm for PCB 0.05mm for 1L FPC 0.12mm for 2L FPC
Minimum board thickness (mm) ≥4L	0.25mm for PCB 0.20 for FPC	0.25mm for PCB 0.16 for FPC	0.25mm for PCB 0.16 for FPC	0.25mm for PCB 0.15 for FPC

Feature	2021		2022	2023
	Standard	Advanced		
Maximum board thickness (mm)	8.6mm	10.0mm	10.0mm	10.0mm
Minimum track / gap IL (mil) - copper weight dependant	0.075mm	0.05mm	0.05mm	0.05mm
Minimum track / gap OL (mil) - copper weight dependant	0.075mm	0.05mm	0.05mm	0.05mm
Surface finish	ENIG / GF / OSP / I Ag / HASL (lead) / HASL (Leadfree) / Plating Au/Ni/ Immersion Sn / GF+OSP / GF+HASL / OSP+E-NIG /IAG+GF/Isn+GF/ENEPIG	ENIG / GF / OSP / I Ag / HASL (lead) / HASL (Leadfree) / Plating Au/Ni/ Immersion Sn / GF+OSP / GF+HASL / OSP+E-NIG / ENEPIG / SPF//IAG+GF/ Isn+GF	ENIG / GF / OSP / I Ag / HASL (lead) / HASL (Leadfree) / Plating Au/Ni/ Immersion Sn / GF+OSP / GF+HASL / OSP+E-NIG / ENEPIG / SPF//IAG+GF/ Isn+GF	ENIG / GF / OSP / I Ag / HASL (lead) / HASL (Leadfree) / Plating Au/Ni/ Immersion Sn / GF+OSP / GF+HASL / OSP+E-NIG / ENEPIG / SPF//IAG+GF/ Isn+GF
Layer to layer registration	0.05mm	25µm	25µm	20µm
Minimum hole (mech) (mm/mil)	0.15mm	0.1mm	0.1mm	0.1mm
Minimum hole (laser) (mm/mil)	0.075	0,05	0,05	0,05
Aspect ratio PTH	18:1	25:1	28:1	30:1
Aspect ration BVH	0.8:1	1.3:1 (factory + design dependant)	1.3:1 (factory + design dependant)	1.3:1 (factory + design dependant)
Finish hole tolerance (PTH)	± 0.076mm	± 0.05mm	± 0.05mm	± 0.03mm
Finish hole tolerance (NPTH)	±0.0375	±0.025	±0.025	±0.025
Maximum Cu weight OL	12oz	12oz	12oz	12oz
Maximum Cu weight IL	12oz	12oz	12oz	12oz
Controlled impedance (+/- X%)	Others ± 10%	± 5%	± 5%	± 5%
Rigid-flex (Y/N)	Y	Y including semi flex	Y including semi flex	Y including semi flex
Flexible (Y/N)	Y	Y	Y	Y
IMS (Y/N)	Y (Al)	Y (both Al and Cu)	Y (both Al and Cu)	Y (both Al and Cu)
Embedded components (Y/N)	Y	Y	Y	Y
Soldermask via plugging IPC4761 Type VI (Y/N)	Y	Y	Y	Y
Epoxy via plugging IPC4761 Type VI (Y/N)	Y	Y	Y	Y
Epoxy via plugging IPC4761 Type VII (Y/N)	Y	Y	Y	Y