

YourPCB SMT Process Capability

This document summarizes SMT assembly, SPI, placement, reflow, AOI / X-Ray, ICT / FCT and engineering support capabilities for supplier qualification, engineering review and RFQ preparation.

Process Category	Item	Standard Capability	Advanced Capability	Engineering Notes
PCB Size Limits	Minimum PCB Size	50 x 50 mm	30 x 30 mm	Panelization is recommended below this size for stable production.
PCB Size Limits	Maximum PCB Size	460 x 460 mm	460 x 700 mm	Supports large-format boards such as server boards and LED strip boards.
PCB Size Limits	PCB Thickness Range	0.4 mm - 3.0 mm	0.2 mm - 6.0 mm	Covers ultra-thin FPC and thick multilayer assemblies.
Solder Paste Printing (SPI)	Minimum Stencil Printing Pitch	0.40 mm	0.30 mm	Critical for precise solder paste control on fine-pitch components.
Solder Paste Printing (SPI)	3D SPI Solder Paste Inspection	Available (area / volume / height / bridging)	Available (closed-loop feedback to printer)	Inline inspection after printing helps prevent many soldering defects.
SMT Placement Capability	Minimum Chip Component	0402 (1005 Metric)	01005	Supports miniaturized assemblies for wearable and compact electronics.
SMT Placement Capability	Maximum Mountable Component	45 x 45 mm	150 x 50 mm (長連接器)	Covers large or odd-form components and connectors.
SMT Placement Capability	Minimum Lead Pitch (QFP)	0.40 mm	0.30 mm	Supports fine-pitch IC placement accuracy.
SMT Placement Capability	Minimum Ball Pitch (BGA)	0.50 mm	0.25 mm	Defines process capability for BGA and CSP packages.
SMT Placement Capability	Placement Accuracy (3 sigma)	± 40 um	± 30 um	Supports high-precision packages with advanced alignment control.
Reflow Soldering	Reflow Heating Zones	8 溫區	10 溫區	More heating zones enable more accurate thermal profile control.
Reflow Soldering	Nitrogen Reflow Soldering	No / optional	Line support (N2 <= 500 ppm)	Reduces oxidation during lead-free soldering and improves solderability.
Reflow Soldering	Double-Sided Reflow Process	Supported	Supported (including adhesive fixing for second reflow)	Supports process control when heavy components are mounted on both sides.
Quality Inspection (QC)	3D AOI Inspection	Available (3D optical inspection)	Available (full-line 3D AOI)	Inspects missing parts, polarity, wrong parts and insufficient solder.
Quality Inspection (QC)	X-Ray Inspection	Available (offline sampling inspection)	Available (3D CT X-Ray / automated inspection)	Used to inspect BGA voiding and hidden solder-joint defects.
Quality Inspection (QC)	First Article Inspection (FAI)	Manual multimeter measurement	Automatic FAI system (LCR comparison)	Prevents incorrect reel loading during line setup.
Quality Inspection (QC)	Electrical Functional Test	Fixture test (FCT)	FCT + flying probe + ICT circuit test	Open/short and functional verification according to customer specifications.
Production & Engineering Support	Special Process Capability	Lead-free process	Underfill / dispensing process	Improves BGA vibration resistance and moisture/corrosion protection.
Production & Engineering Support	Fast Prototype Build	3 - 4 days	24 - 48 hours	Fast response for NPI and prototype phases.
Production & Engineering Support	Production Volume Flexibility	Small to medium-volume production	Prototype to mass production	Flexible line changeover from prototype to volume production.
Production & Engineering Support	DFM Engineering Review	Basic manufacturability review	Full DFM optimization report	Identifies component opening, pad and manufacturability issues before production.