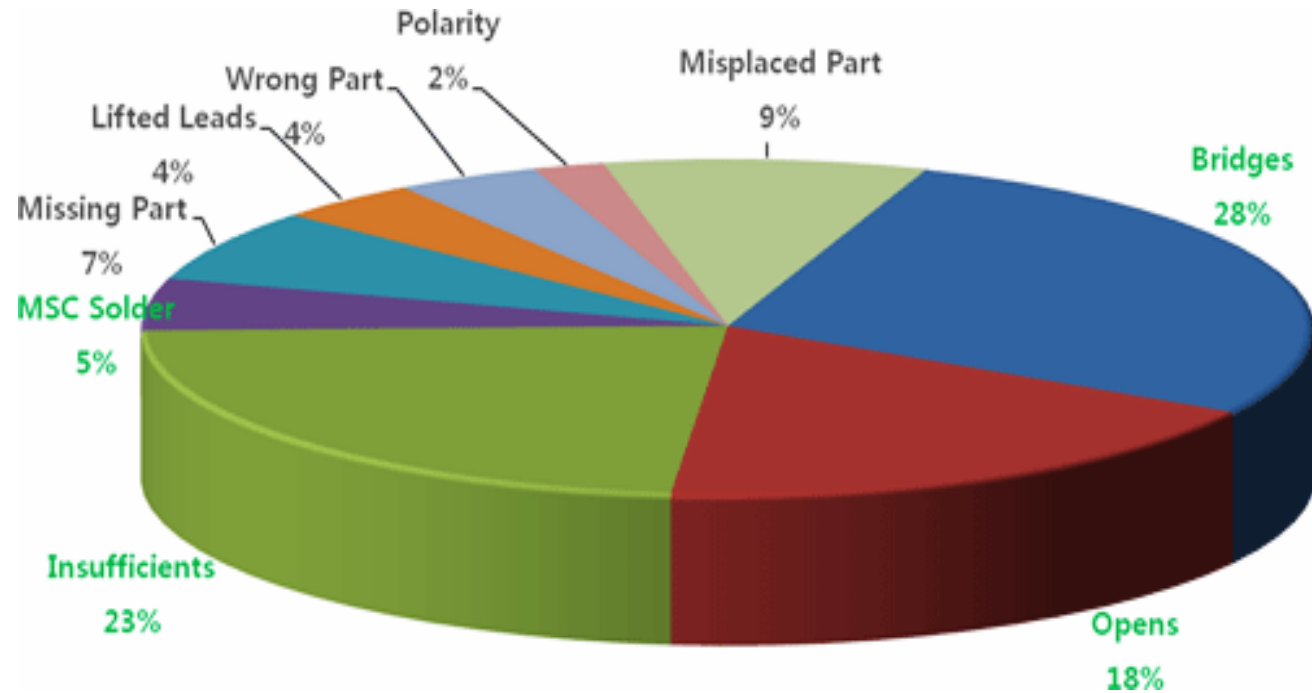


# S - 9300 3D SPI



Inspection principle	color vector boundary measurement method
PCB Spec:	PCB Size (mm): Min (50*50), Max (415(W)*355(D)); PCB Thickness(mm): 0.6~5.0; Weight(kg): <5.0 . PCB Component Height: above <10mm, below<30mm PCB Warpage: <3mm
Vision System Configuration:	German 5 megapixel CCD digital high-speed industrial camera, custom tele-centric optical lens Physical resolution: 12um or 8.8um/15um (option) FOV: 29.5mm*24.7mm
Inspection speed:	0.28 S/FOV
Machine structure and precision::	cast iron components + C4 grade ball screw + P-class linear slide + AC servo; Repeat positioning accuracy: $\pm 3\mu\text{m}$
PCB loading:	Left into the Right ; Right into the Left (option)
Online PC:	Yes (supports visual programming and production status monitoring)
Air and power supply:	$0.5 \pm 0.1\text{Mpa}$ ; 5L / min (max). 220V ~ 50Hz; 1000VA (maximum); grounding
Equipment size and weight	620(W) x1310(D) x1500mm(H); 950kg
Track extension:	Optional 1> left extension 200mm; optional 2> right extension 200mm
Uninterruptible power supply (UPS)	optional

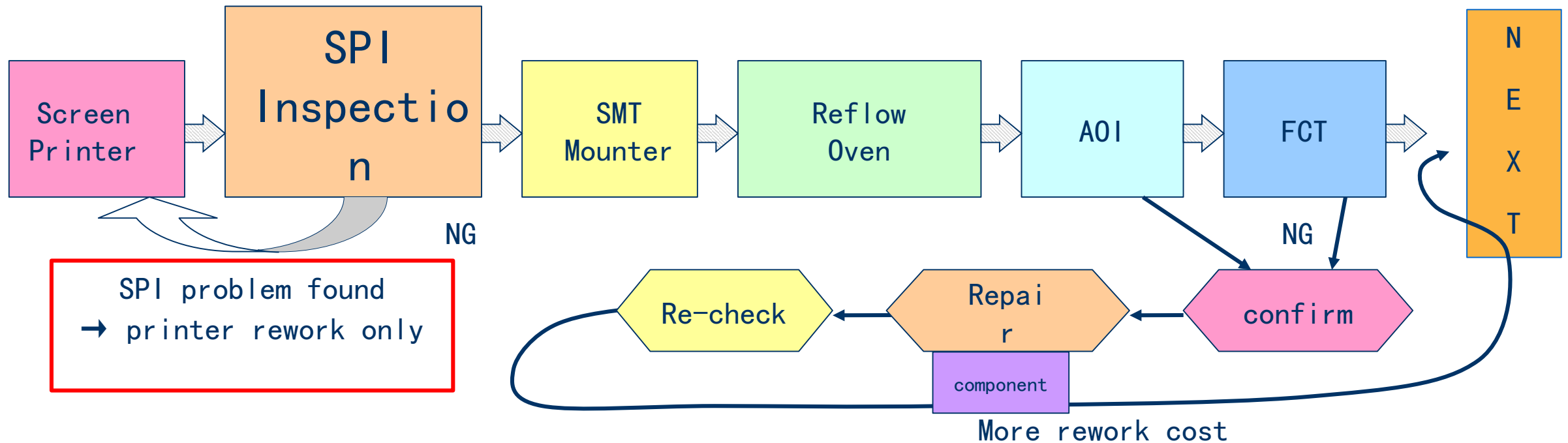
# Why SPI



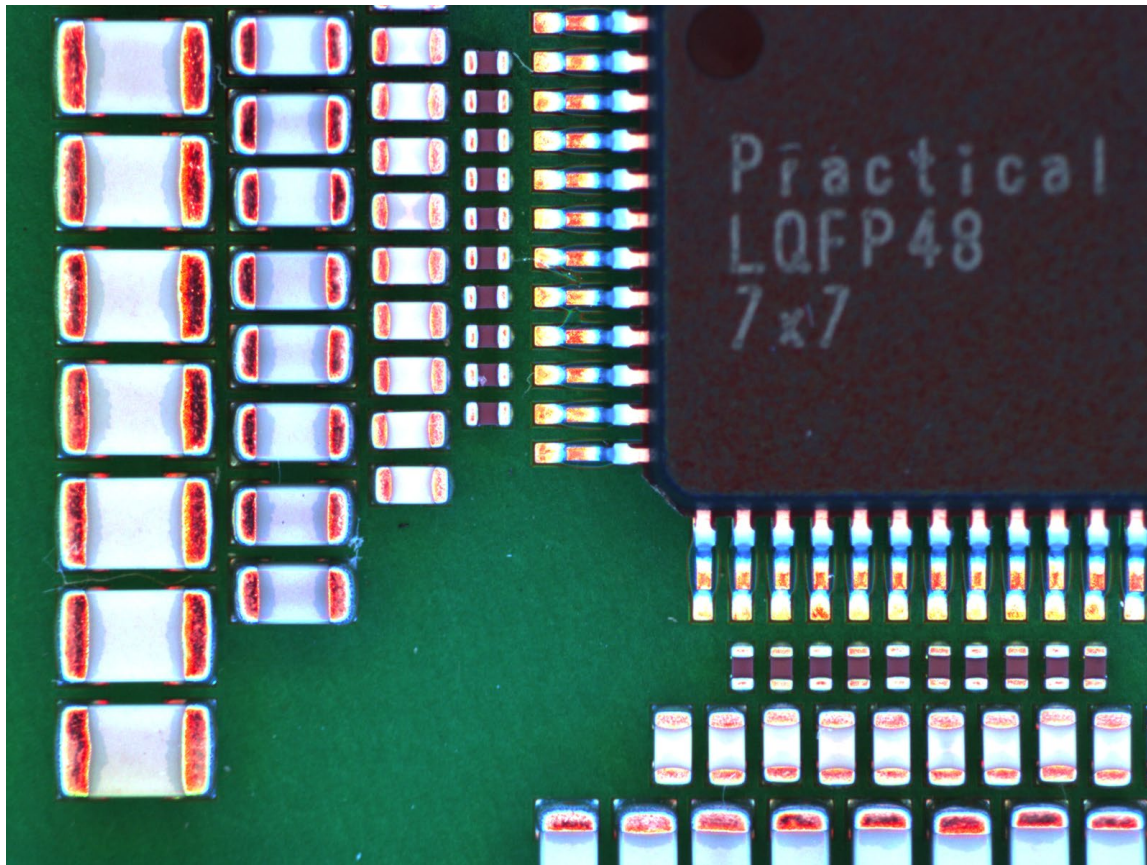
A total of about **74%** of the poor,  
From the solder paste printing  
process

# SPI value

- 1, Control the printing quality to improve product yield;
- 2, Timely detection of problems, control product quality, reduce rework human and material resources.
- 3, Improve production efficiency;
- 4, And other testing equipment in series, closed-loop monitoring product technology.
- 5, Enhance the product control of the work section



# SPI application

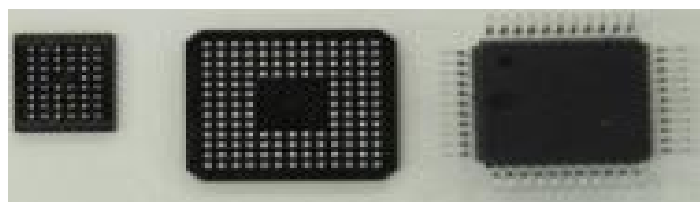
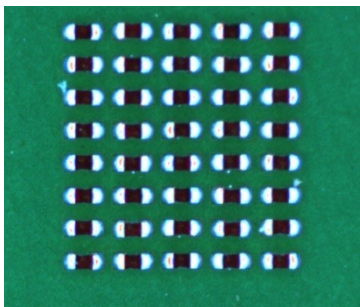


1, 4.0 industry: smaller and smaller SMT components, more and more dense pin pitch ... beyond the human eye can recognize the ability.

2, 0201 and 01005 components: resulting in artificial visual loss rate as high as 98%, rework scrap rate as high as 30% or more

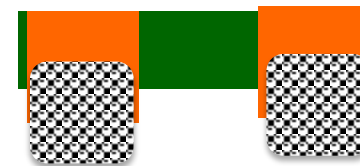
3, High rework costs and difficulty: QFP, PLCC, BGA and other solder joints hidden in the body under the components,.

4, High labor cost: industrial upgrading and transformation of the industry



# SPI Inspection Capability: Offset

- The center of the printed solder paste is outside the process area
- Caused empty welding, side stand, missing pieces, short circuit and so on



Printing  
Offset

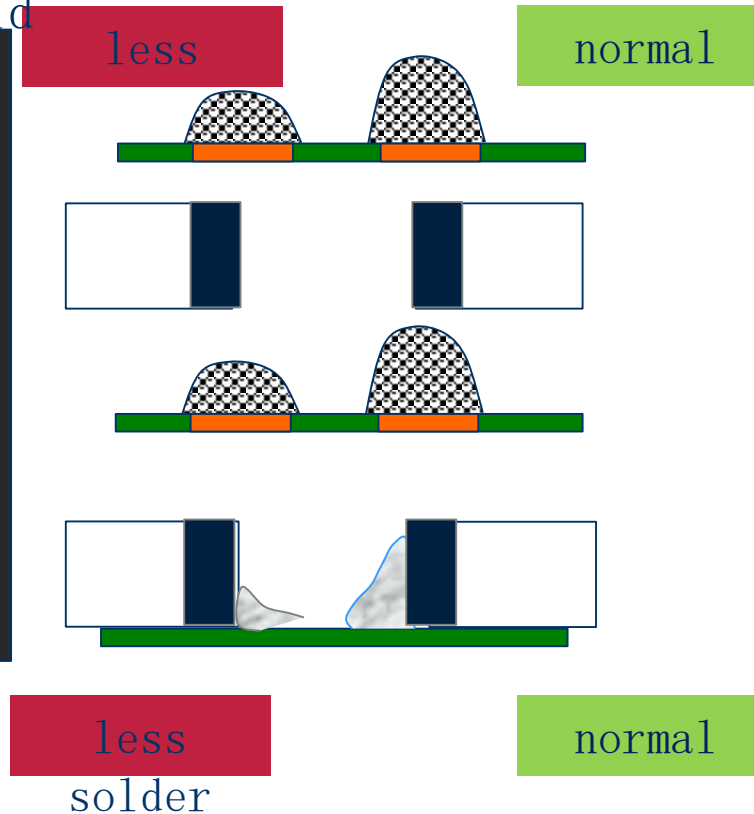
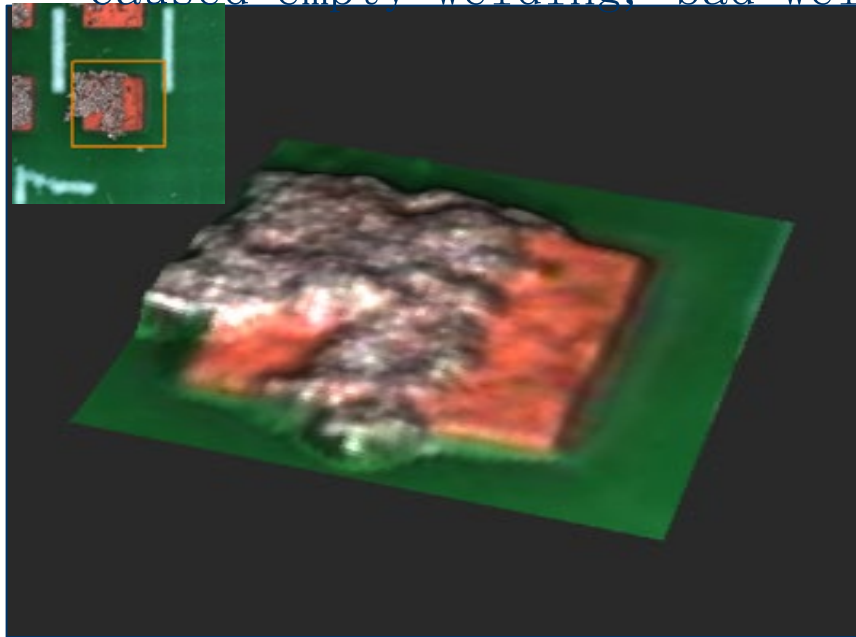


Mounting  
Offset



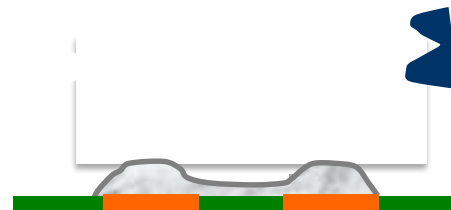
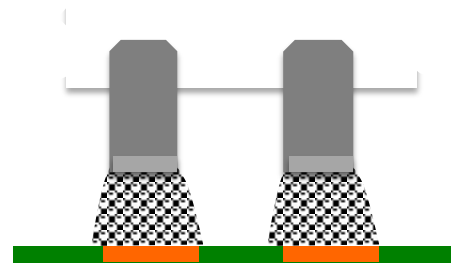
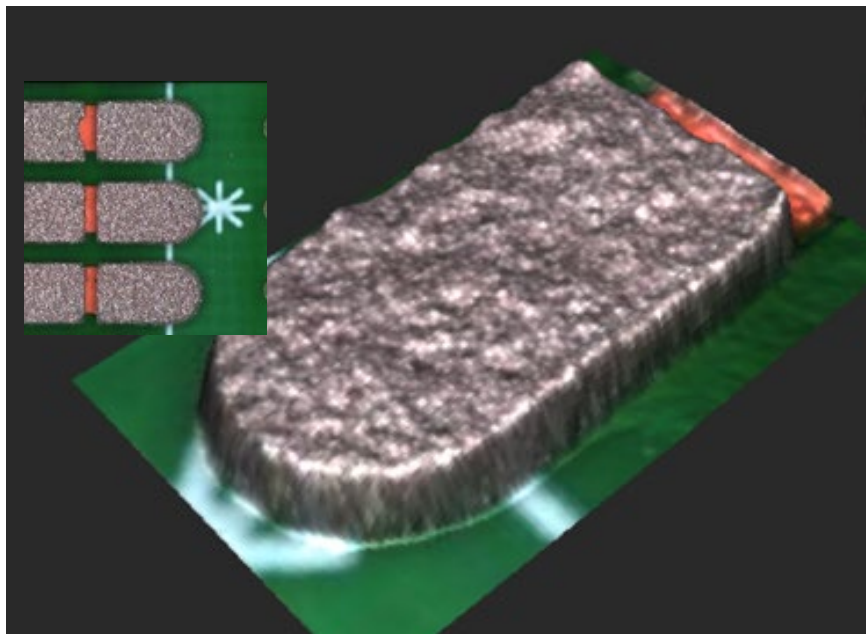
# SPI Inspection Capability: less solder

- The amount of tin is less than the lower limit of the process setting
- Caused empty welding, bad weld



# SPI Inspection Capability: more solder

- The amount of tin is higher than the upper limit of the process definitio
- Caused short circuit, tombstone and other bad

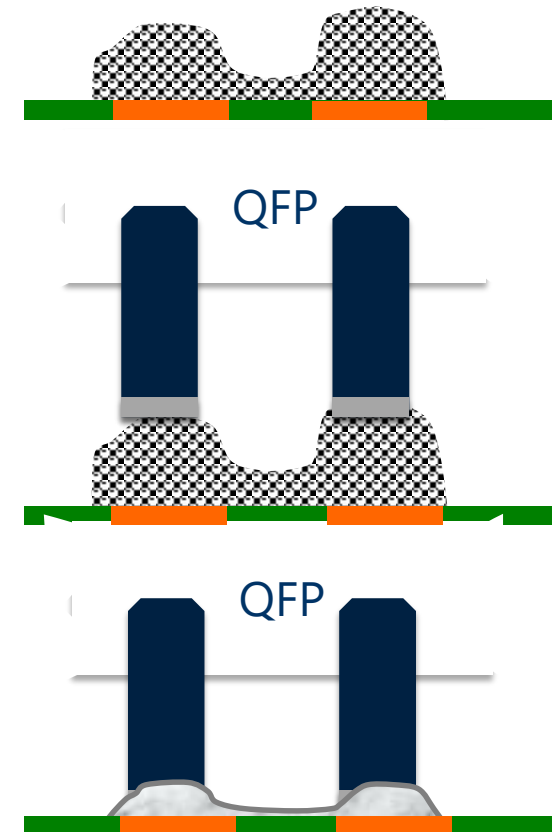
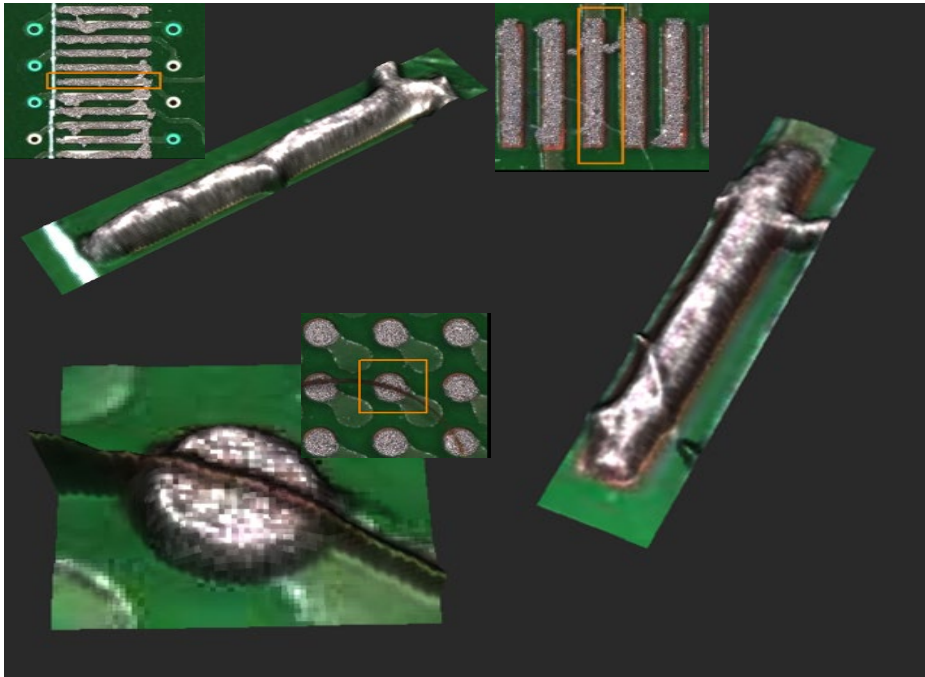


more

Short

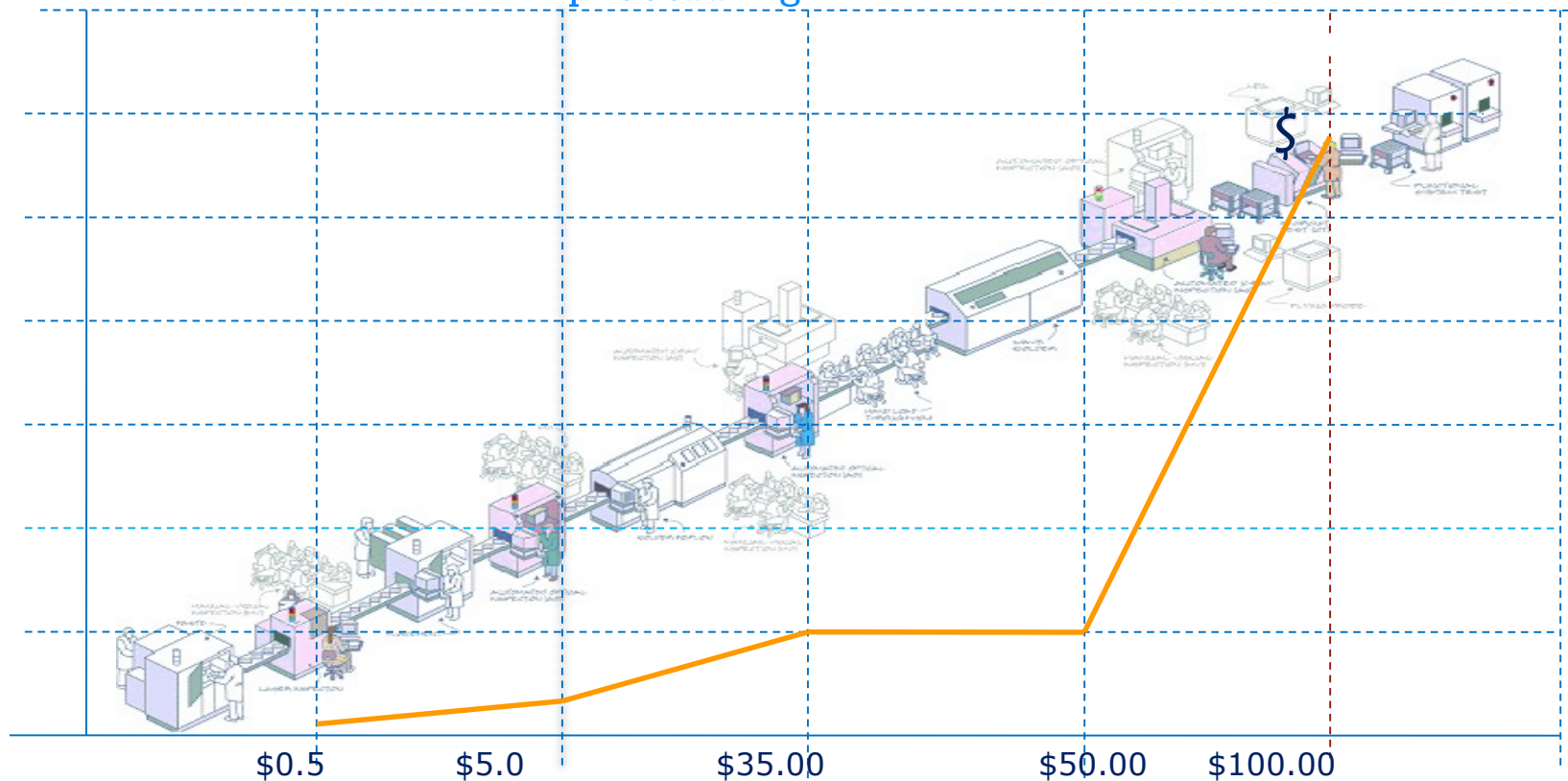
# SPI Inspection Capability: Short Circuit

- There are solder paste connections between the two adjacent Pad
- Caused short circuit



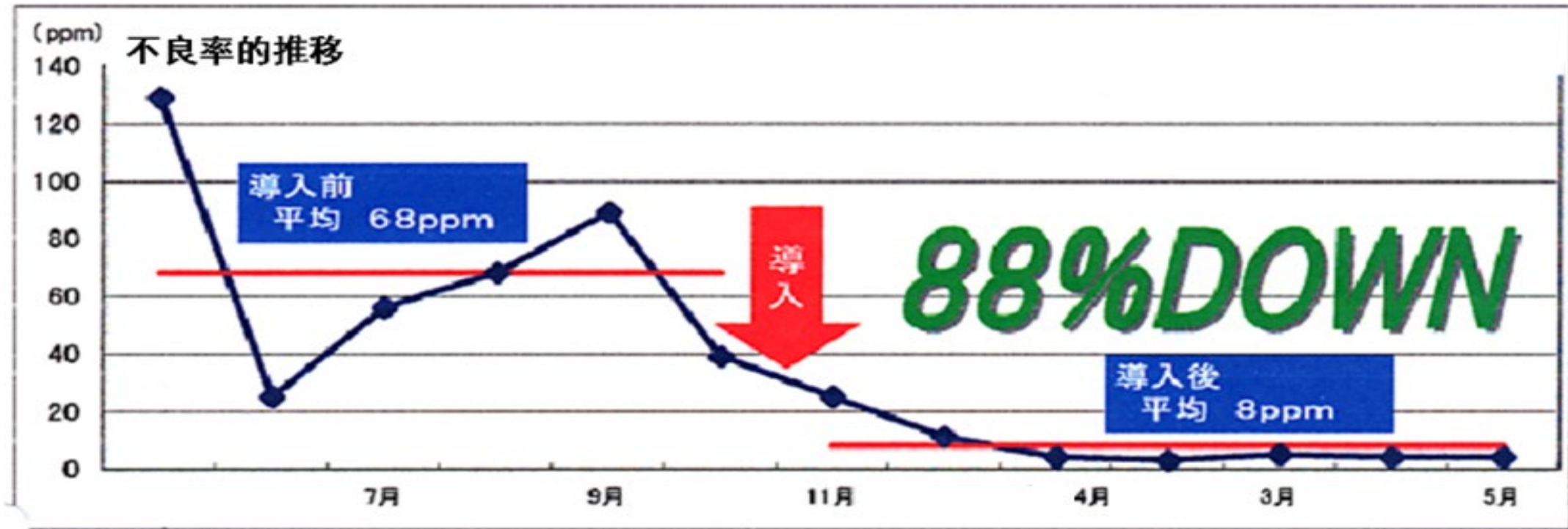
# SPI value

The lowest cost of rework to find bad in the solder paste printing processing



# SPI case study

After SPI, Non-performing rate decreased by 88%, improve the product's pass rate

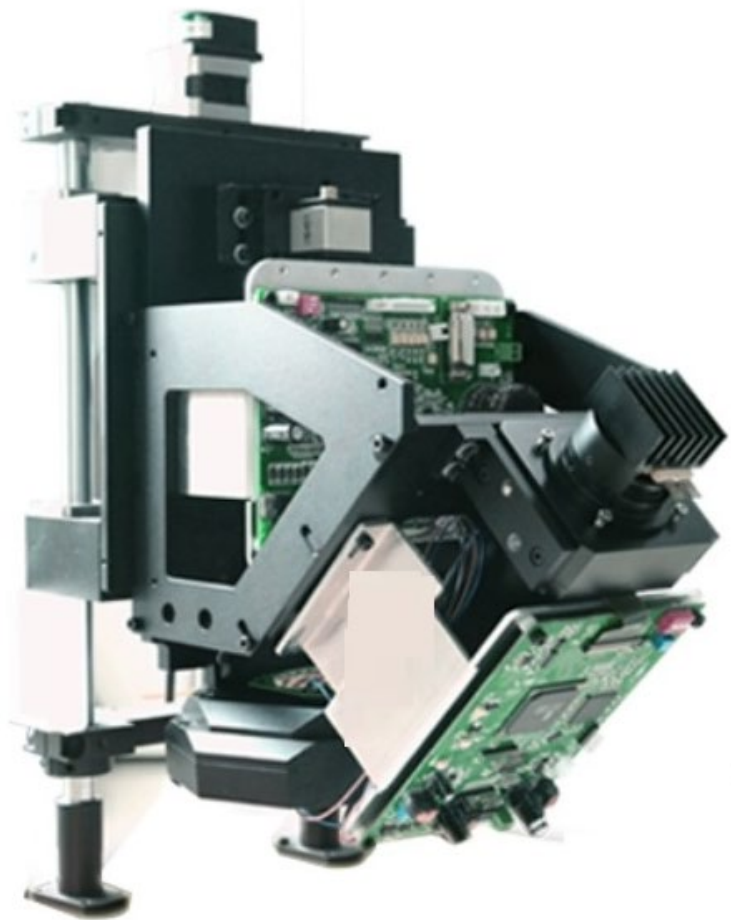


# SPI — ROI = 1 year

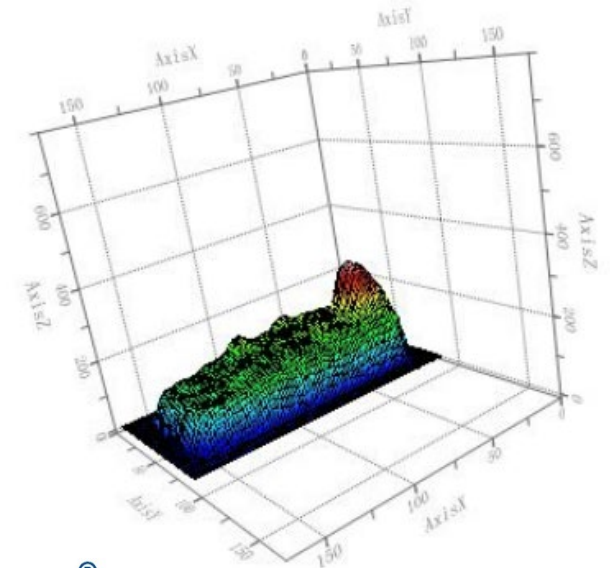
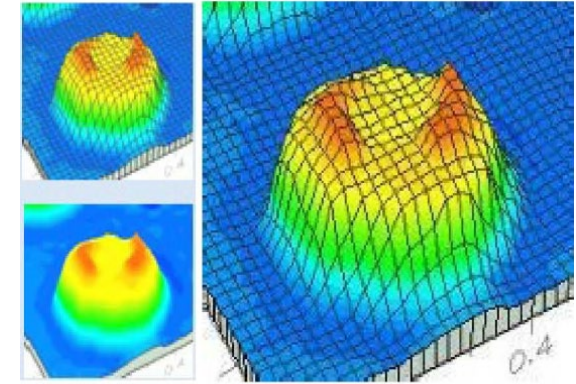
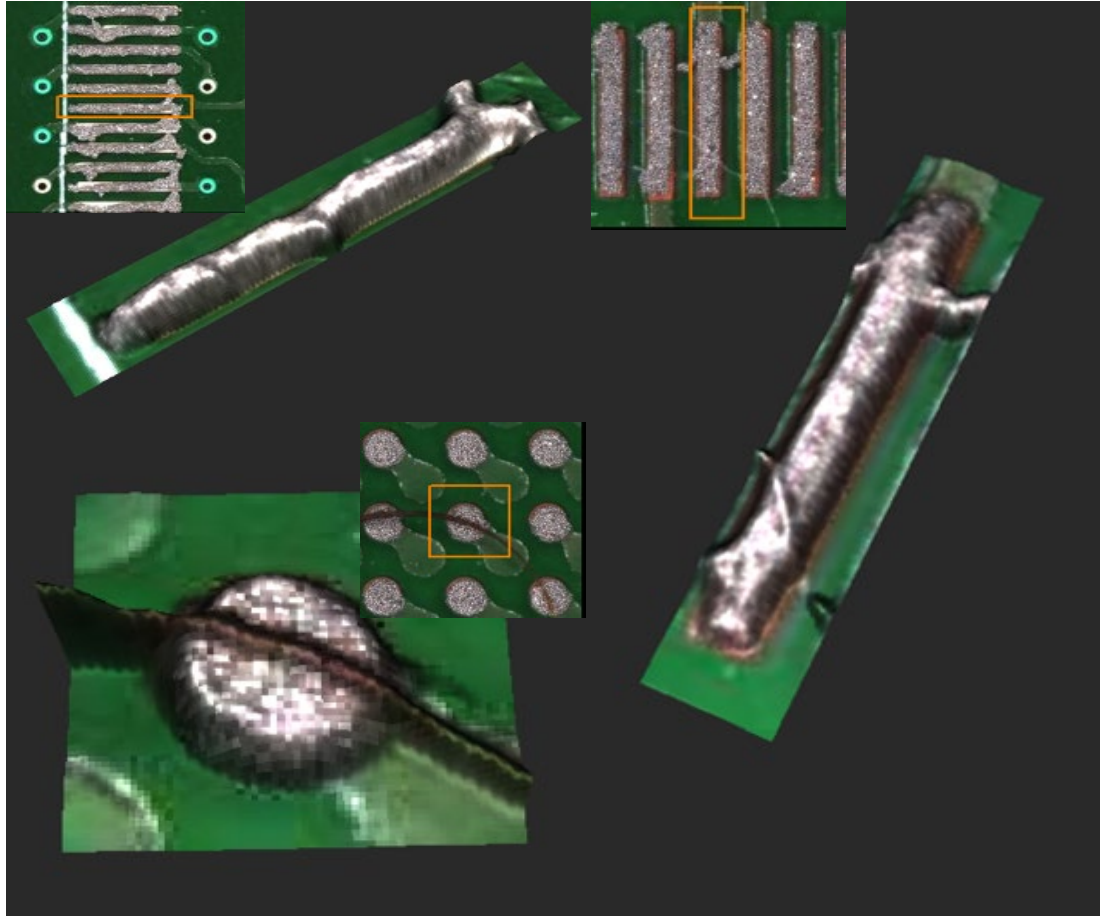
**ROI = Annual profit or average annual profit / total investment × 100%**

- **SPI machine cost: \$50k;**
- **Meet the production, testing, maintenance, technology, quality and other multi-sector use requirements**
- **Production - QC: \$1k Salary/ monthly x2 Shifts x12 Months =\$24K/year**
- **Maintenance - rework cost: \$0.5/component x100/day x300days=\$15K/year**
- **Processing: to improve the solder paste printing process, optimize the printing parameters, \$5K/year**
- **Quality department: SPC process control tool, customer audit in line with the 6sigma process basis, \$6K/year**
- **Other: Improve customer confidence in the product quality of the processing side, get more orders!**
- **ROI= (\$24K+\$15K+\$5K+\$6K) /\$50Kx100% = 1**

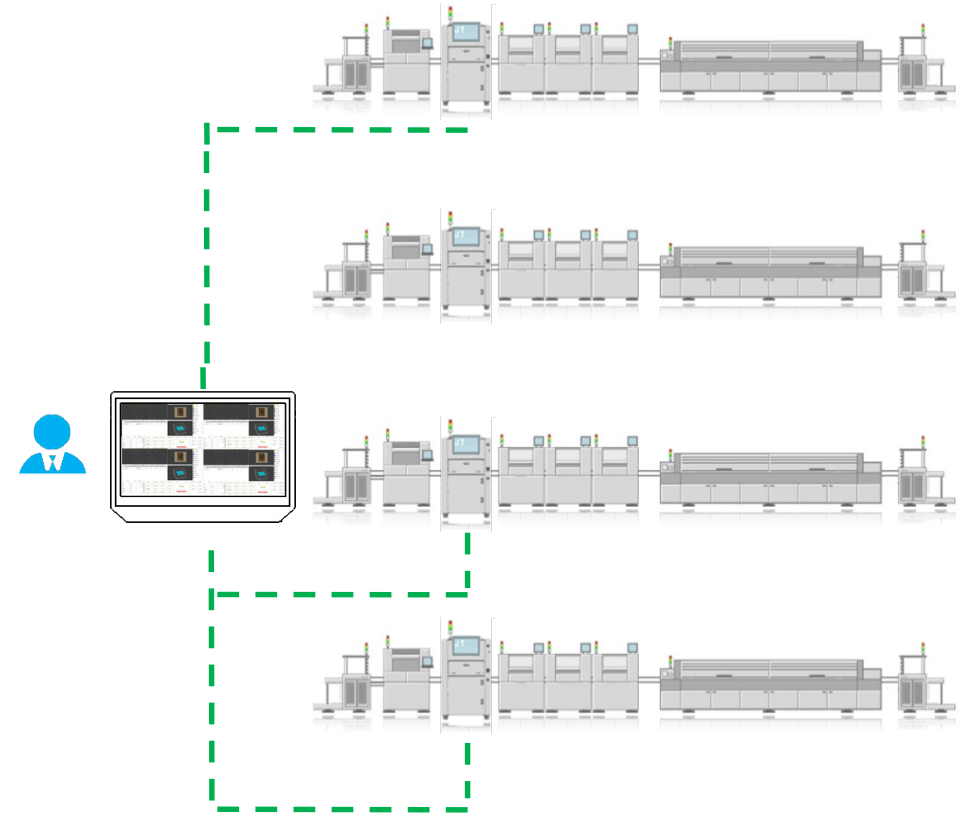
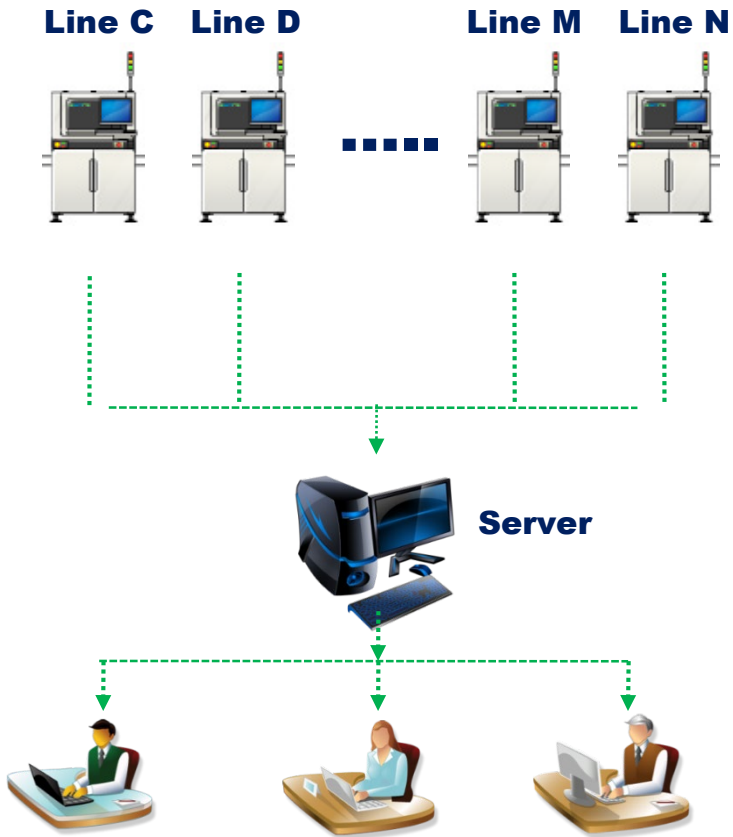
# SPI 3D technology



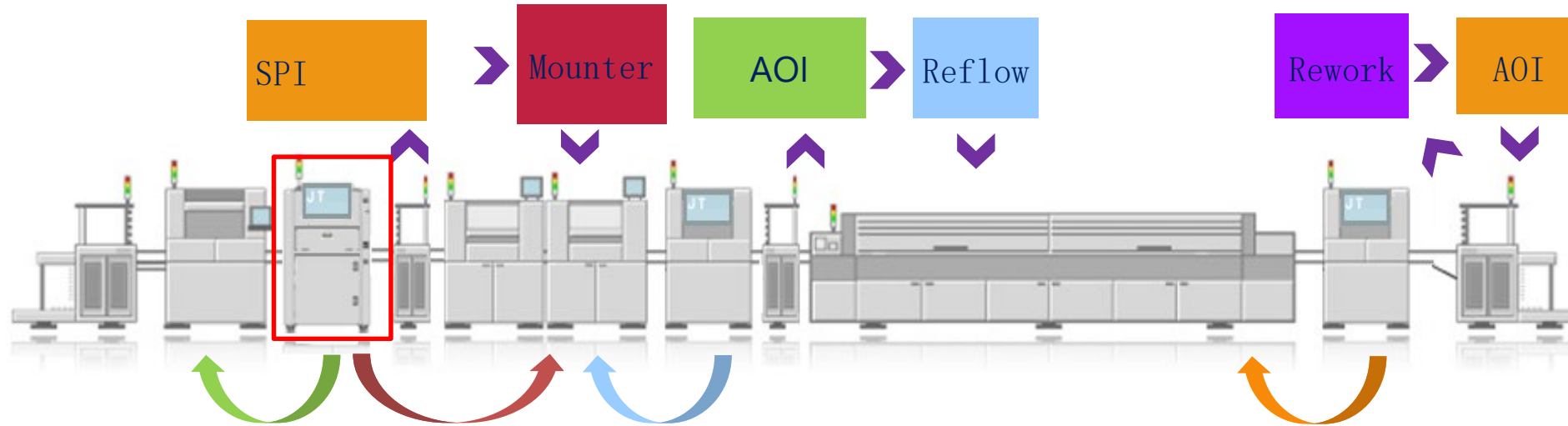
# SPI 3D technology



# SPI Total network quality management



# SPI Quality Control Close Loop



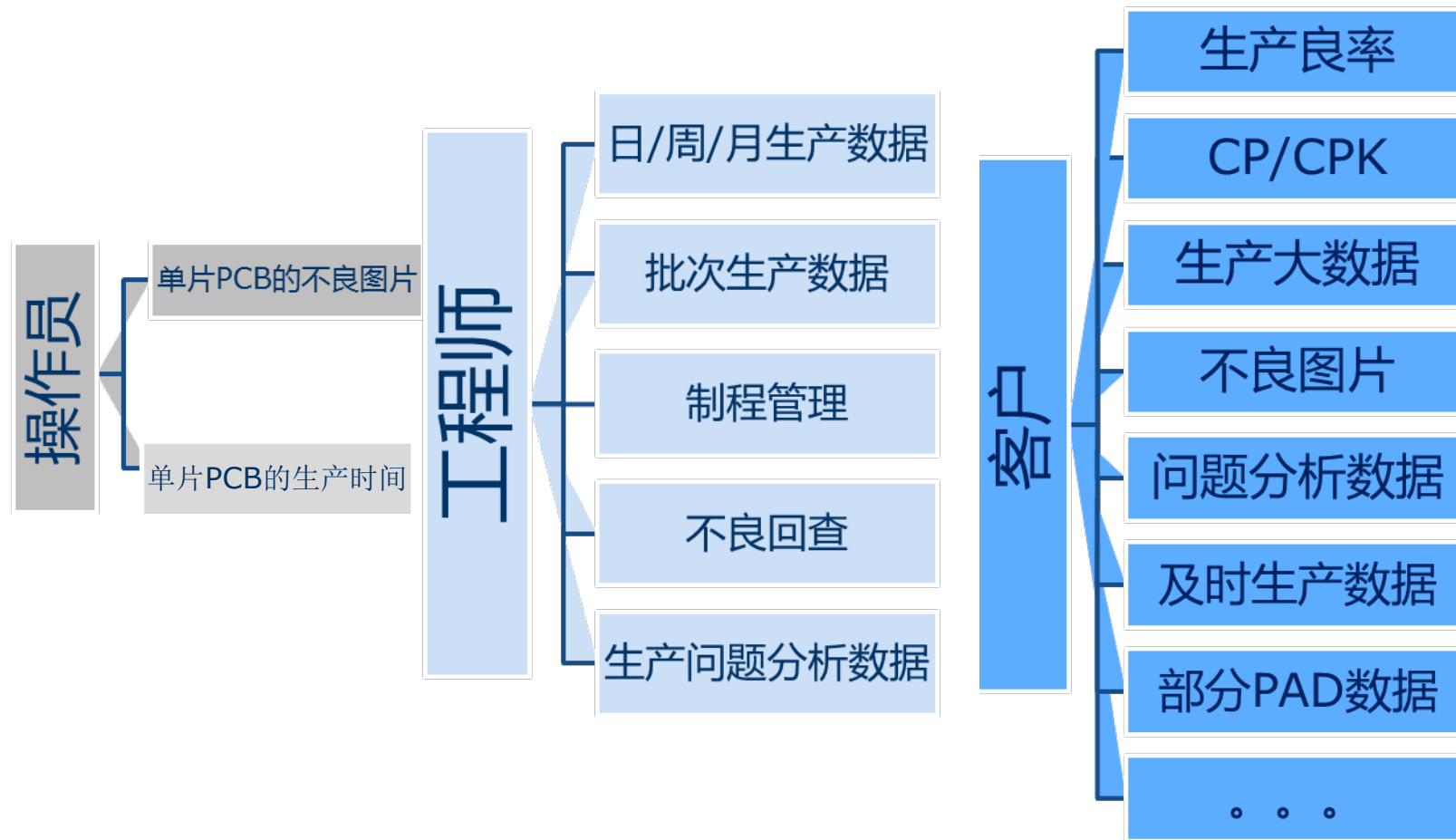
SPI –  
Feedback to  
Screen  
printer

SPI  
— Feedback  
to Moulder

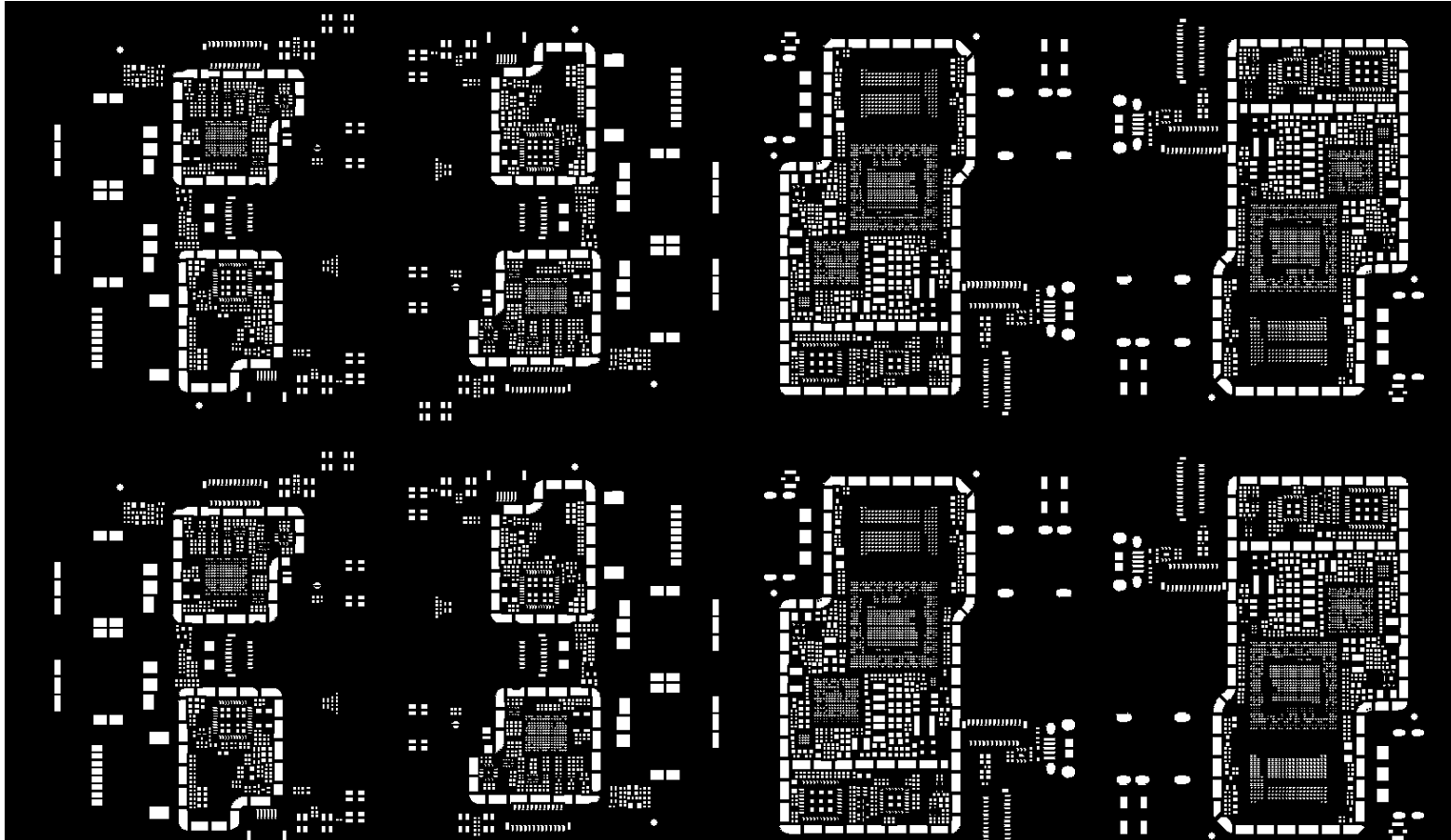
AOI —  
processing  
improving

SPI, AOI —  
processing  
improving

- Customize statements and statistics



# SPI - Bad Mark output



BAD-MARK function:  
To advance notice  
mounter to enhance  
the placement quality  
and efficiency!

# Welcome inquiry

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- 3, Know more our team: <https://cn.linkedin.com/in/smtsupplier>
- 4, Welcome to our factory in Shenzhen China
- 5, See more machine working video, please Youtube: Auto Insertion
- 6, Google: Auto+insertion, to get more informations
- 7, Looking forward to your email: [jasonwu@smthelp.com](mailto:jasonwu@smthelp.com)