iLNB
"Cross-Model ID Verification Function"
- Preventing PCB Mix-ups

Panasonic CONNECT

Do you have any of these problems?

Frequent mix-ups with boards that look similar

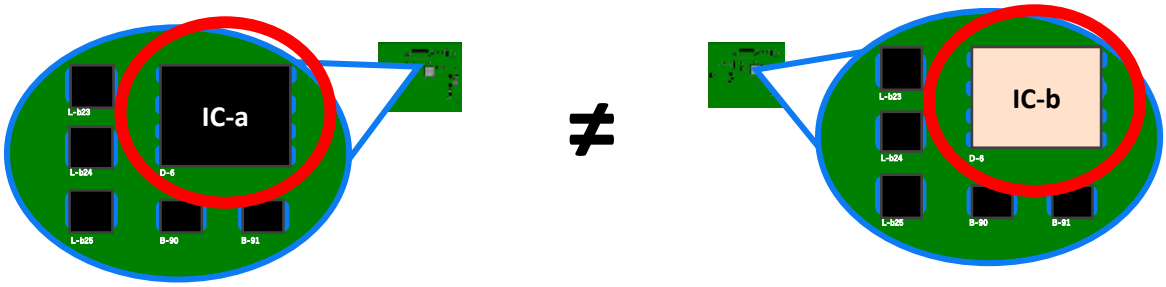
In production sites, various products are manufactured, but problems can occur in processes that handle PCBs with very similar appearances.

For example, as shown with PCB “A-a” and PCB “A-b” in the figure below, when the mounted components and overall appearance of the PCBs are nearly identical, there is an increased risk of workers mistakenly feeding different PCBs into the production line. This results in mix-ups that can cause equipment shutdowns, impact investigations on current production, and seriously affect the quality of final products.

Particularly in high-volume production lines, when such mistakes occur even once, they affect all subsequent processes, ultimately leading to major issues such as delivery delays and increased costs.

Example:

When PCB “A-b” are poured into the line
when PCB “A-a” are planned to be produced.



PCB: A-a

PCB: A-b

In the production of PCBs that are similar in appearance, it is easy to make work errors

Examples of iLNB's approach to solving the problem

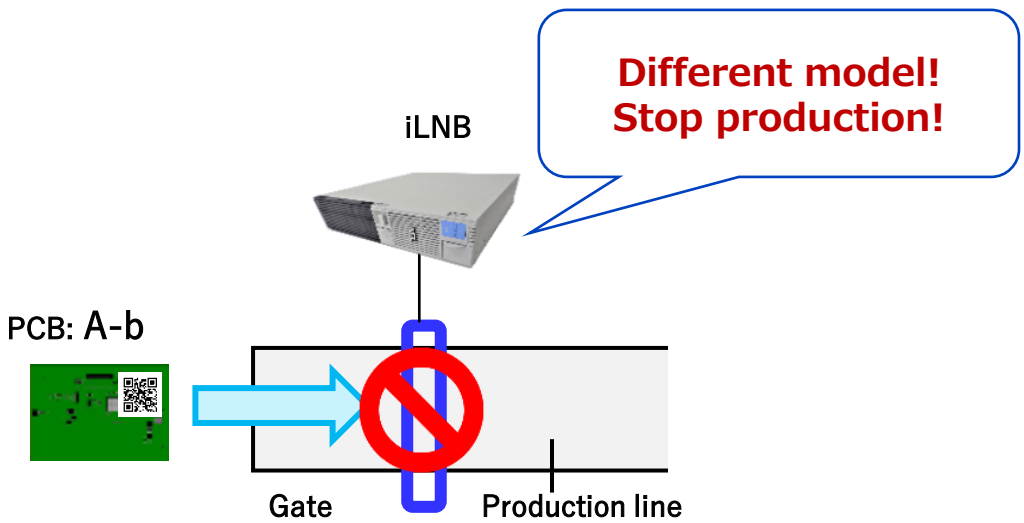
Introduction of the "Cross-Model ID Verification Function"

In order to solve these problems, Panasonic's integrated line system, iLNB, is equipped with a unique heterogeneous check function.

The unique board ID assigned to each board can be checked against a pre-set production program.

With this automatic matching function, if a board with a similar appearance is accidentally loaded into the line, production is immediately stopped by a gate check on the line, preventing the non-conforming board from proceeding to subsequent processes.

Example: During the production of A-a PCB, people manually put A-b PCB into the line.



Issues before the introduction of "Cross-Model ID Verification Function"

Let's examine the improvements achieved before and after implementing this function.

■Before implementing “Cross-Model ID Verification Function”: Frequent mixing errors

Before implementation, operators frequently mistook PCB A-b for PCB A-a during production due to similar appearances of components and PCBs, making visual distinction difficult.

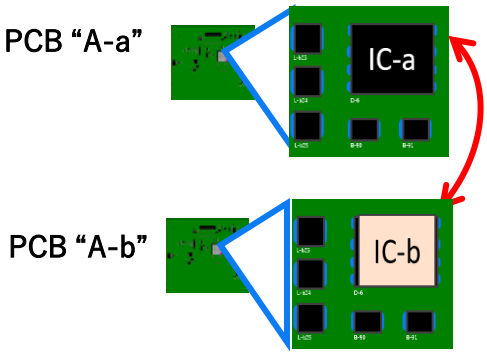
This resulted in mixed PCBs proceeding through production, creating risks of numerous defects.

Mix-ups occur not only when feeding boards at the line start, but also when returning repaired PCBs mid-process.

When discovered, identifying who caused the mix-up, at which stage, and with which board is time-consuming. Additionally, line stoppage, production impact assessment, and inspection data verification become necessary.

Before

Example: In the case of two models with different IC chip components



①During A-a production, the substrate of ②A-b was accidentally flushed.

Daily Production plan

① PCB A-a

② PCB A-b

⋮

After the introduction of the "Cross-Model ID Verification Function" - Prevention of Heterogeneous Contamination -

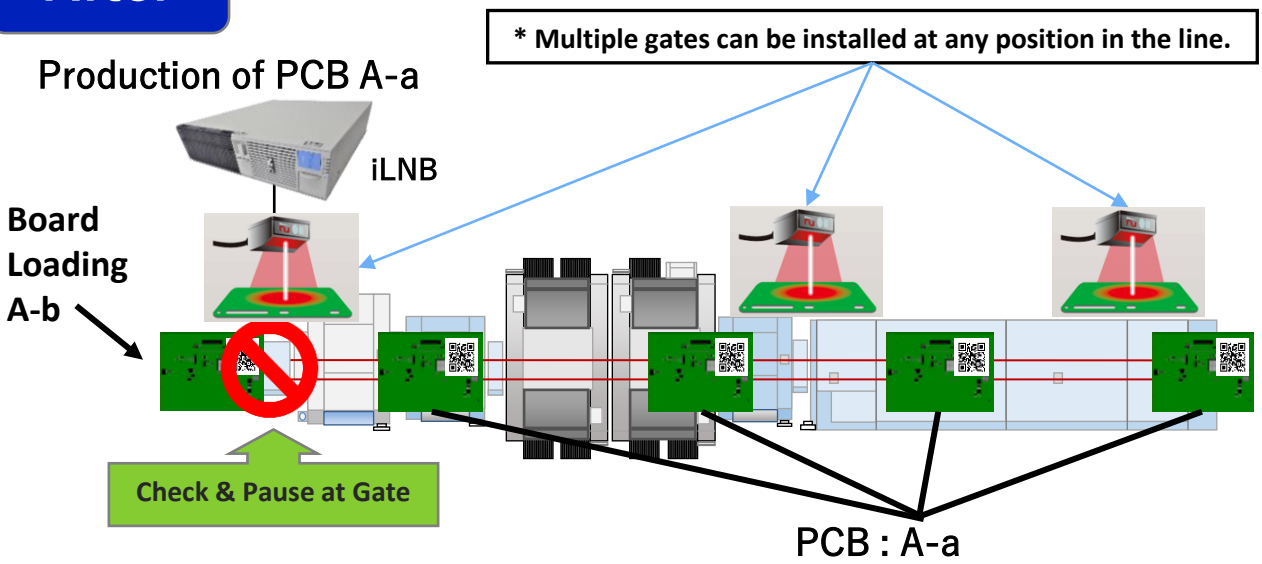
After implementing this function, each PCB-ID is automatically recognized at gate checks. Even if PCB A-b is mistakenly fed during PCB A-a production, the gate check immediately blocks the defective flow, preventing different model mixing and enabling rapid problem detection.

An additional benefit of gate checks is that multiple gate check functions at various points clearly identify in system logs where and which board mix-up occurred, enabling subsequent workplace improvements.

The iLNB system can also automate complex stopping procedures previously performed manually, ensuring no impact on normal production.

Furthermore, reduced downtime and defect reduction achieve overall production efficiency improvement and quality enhancement.

After



PCBs that are different from those in production are suppressed from being brought into the machine after detection at a gate in the line.

Introduction of Panasonic's Total Support

Panasonic's "Cross-Model ID Verification Function" using iLNB is a powerful tool for dramatically improving the quality of production at the site.

The introduction of these functions is essential for factories to continue to produce high-quality products efficiently.

We have a system in place to make optimal proposals tailored to the customer's site and promote improvements together.

Please take advantage of Panasonic's solutions that lead to improved productivity!