Panasonic
BUSINESS

2020

Electronics Assembly System
catalog
Manufacturing operations optimizer

MFO

Model No.NM-EJS6B

Replicate SMT floor in cyber space

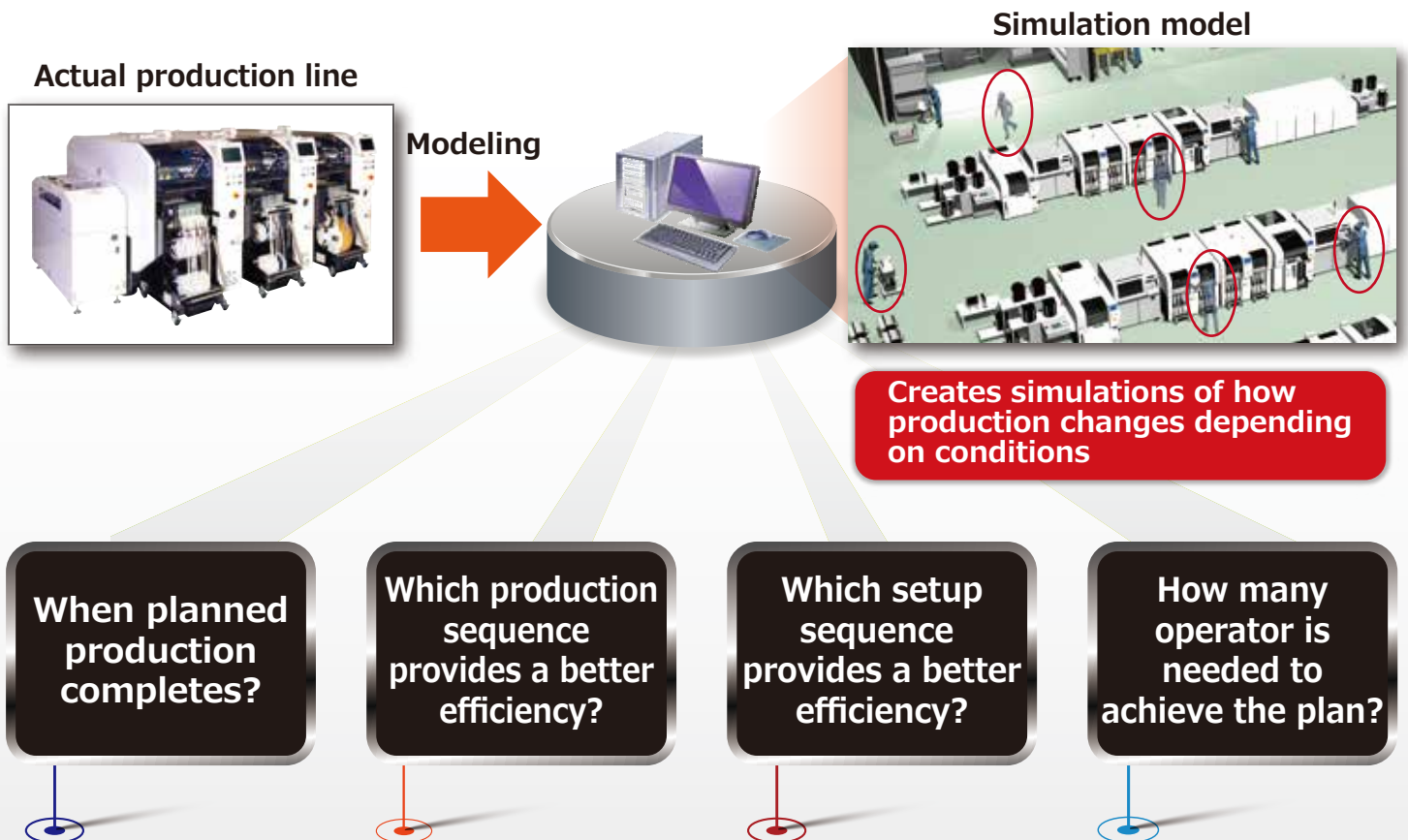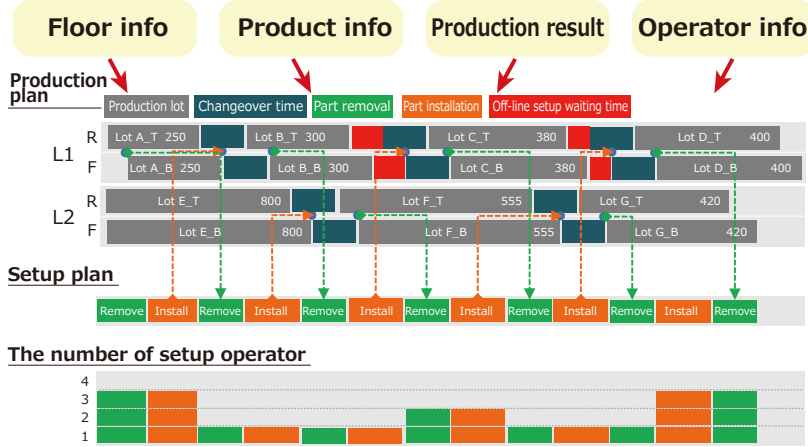## Automatically draws up a production plan necessary for on-site operations to reduce man-hours required for the production plan process and enhance production efficiency

Actual production line

Simulation model

Modeling

Creates simulations of how production changes depending on conditions

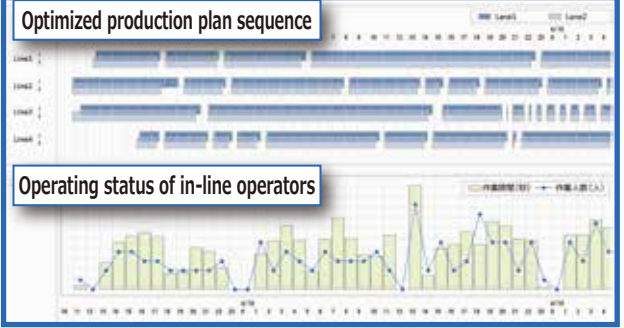| When planned production completes?	Which production sequence provides a better efficiency?	Which setup sequence provides a better efficiency?	How many operator is needed to achieve the plan?

MFO creates the schedule of detailed production and pre-setup operation, and also calculates the number of operators required for the production by manufacturing simulation of the entire SMT floor.

Image of the system

Floor info　　Product info　　Production result　　Operator info

Production plan

| Production lot | Changeover time | Part removal | Part installation | Off-line setup waiting time |

L1
R　Lot A_T 250　Lot B_T 300　Lot C_T 380　Lot D_T 400
F　Lot A_B 250　Lot B_B 300　Lot C_B 380　Lot D_B 400

L2
R　Lot E_T 800　Lot F_T 555　Lot G_T 420
F　Lot E_B 800　Lot F_B 555　Lot G_B 420

Setup plan

Remove Install Remove Install Remove Install Remove Install Remove Install Remove Install Remove

The number of setup operator

4
3
2
1

Reports of simulation / optimization results

Optimized production plan sequence

Operating status of in-line operators

Function list

Function	Description
①Mounting process simulation	In consideration of "error occurrence in production machines," "parts exchange by operators" and "operators' travel time," it models a mounting floor, and simulates production conditions including multiple mounting lines and off-line setup processes. This ensures highly accurate simulation results.
②[Optimization function] Production plan optimization	In consideration of multiple production lines, it optimizes a production plan based on the production conditions set up in [mounting process simulation]. This allows the "production line" and "production order" of each PCB to be calculated / provided automatically.
③[Optimization function] Setup plan optimization	It optimizes "off-line setup" sequence according to the production plan developed in [production plan optimization]. This allows automatic calculation / provision of "priorities for setups in multiple lines," "a setup plan that takes into account the shred use of carts" and "effects of an increase / decrease in the setup number of operators on the production plan." *The optimization function of "In-line setup" is currently under development.
④[Optimization function] number of operators optimization	Based on the production conditions set up in [Mounting process simulation], it optimizes the number of operators required for each line and setup, allowing you to automatically calculate / provide "the number of the operators required."

Applicable machine

Machine series	Model	Machine info entry
NPM-X/NPM/VM/AM series	NPM-DX、NPM-WX/WXS、NPM、NPM-D/D2/D3、NPM-TT/TT2、NPM-W/W2/W2S、VM101/102、AM100	Yes *
CM/DT series	CM602-L、CM232-M/212-M、CM101-D、CM402-L/M、CM401-L/M、DT401-F/M	
Screen printer	SP60/70/80/18、SPG/SPD/SPV/SPV-DC	
NPM-VF series	NPM-VF	
Panasonic's former machine	Machines not included in the ones mentioned above	—
Competitor's machine	Competitors' machines (loader, screen printer, SPI, placement machine, AOI, reflow, etc.)	

*Because machine information is registered during installation, you will be able to easily configure settings such as registration of the floor configuration of your mounting production lines.
※For details, contact us.　　※The current version is limited to the mounting process.　　※Prepare PC on your own.

⚠ Safety Cautions

● Please read the User's Manual carefully to familiarize yourself with safe and effective usage procedures.

● To ensure safety when using this equipment, all work should be performed according to that as stated in the supplied Operating Instructions. Read your operating instruction manual thoroughly.

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