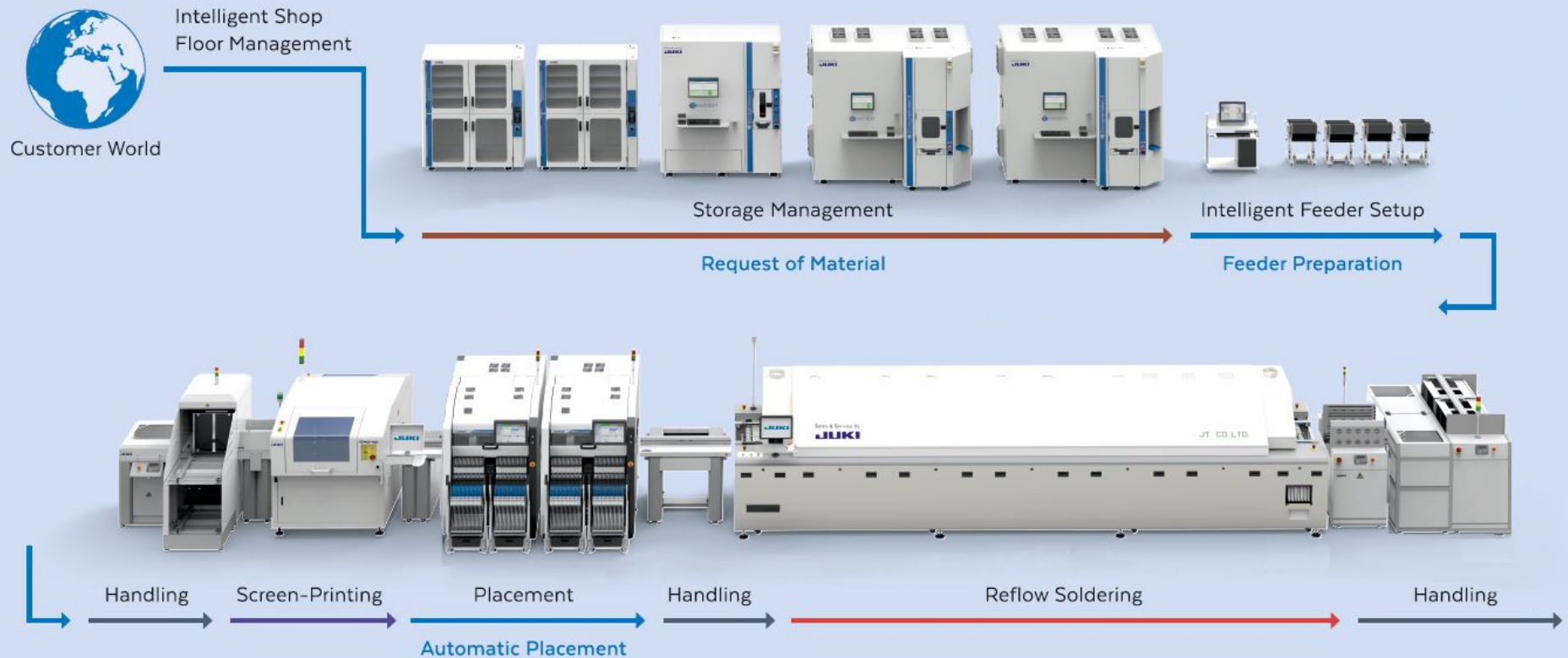


HEYFRA®

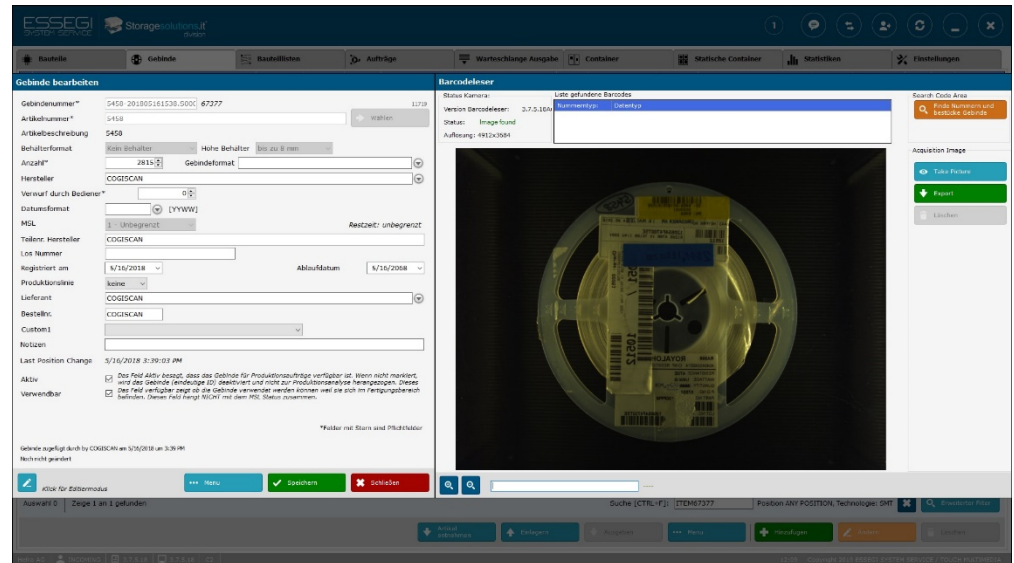
Masterminds of electronics.

Overview Traceability



Goods Receipt

- the item is created in the software "Intelligent Feeder System" at the Material Incoming Station, labeled and stored in the appropriate storage location (Paternoster)
- a digital image of the item is stored in the database



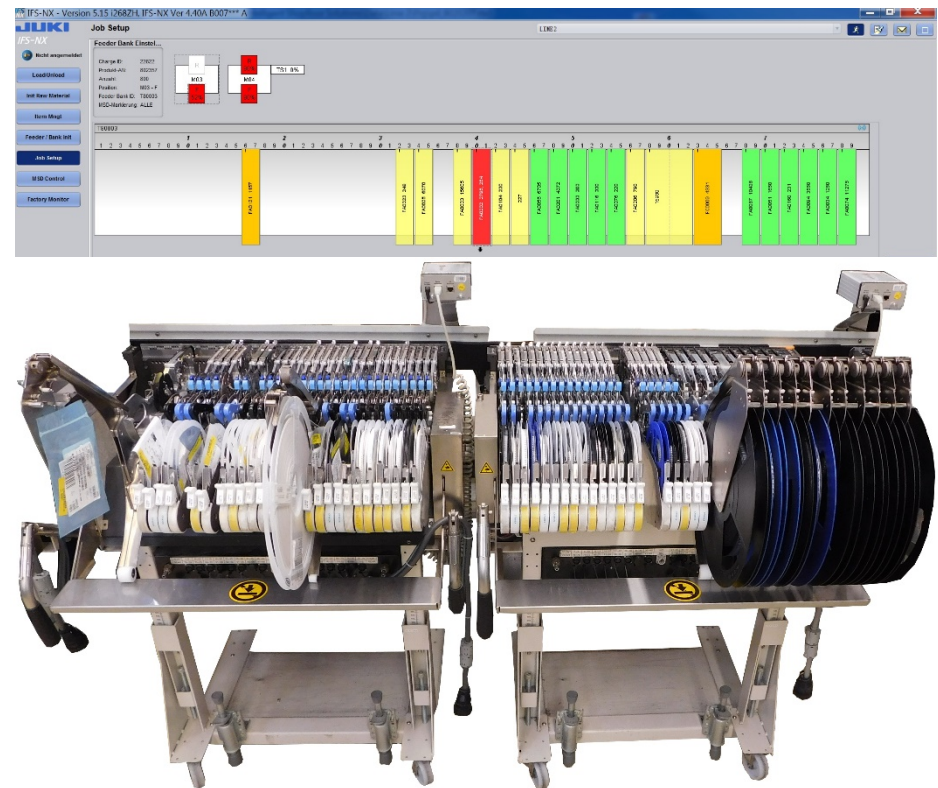
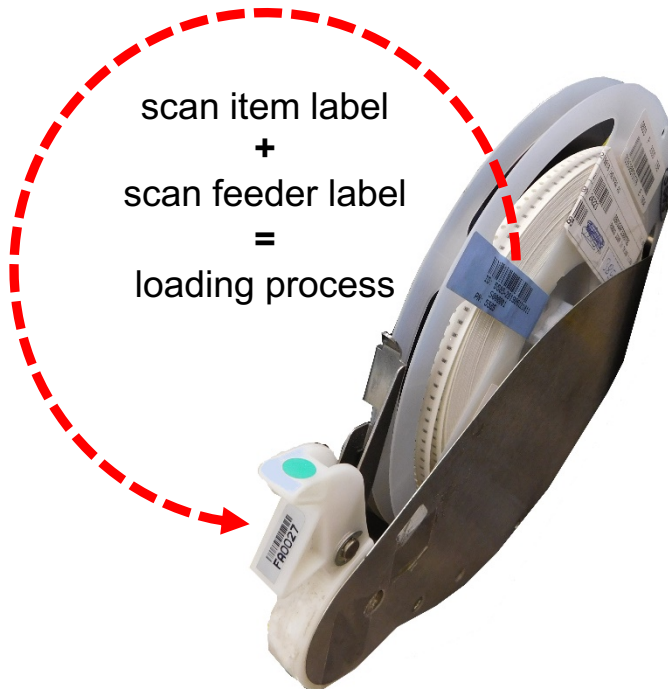
Annealing PCB

- the printed circuit boards are removed from the package and placed into the bake oven for 2 hours at 120°C after the batch label has been scanned



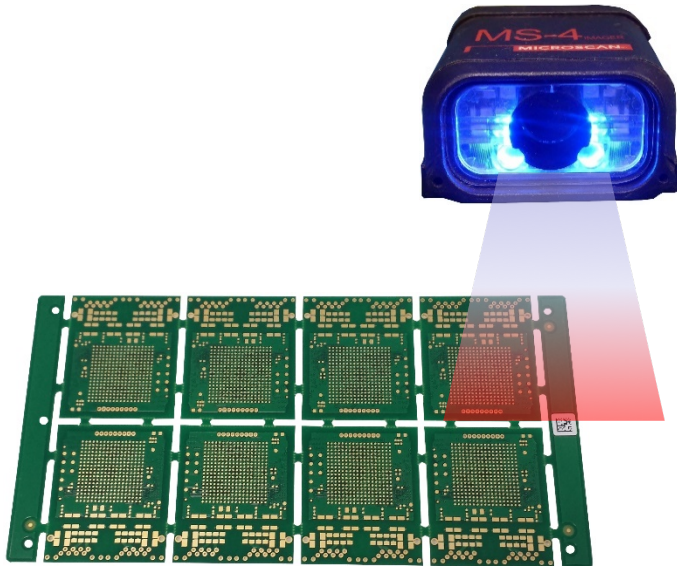
Request of Material / Feeder Preparation

- the items are loaded to the feeders and prepared as specified in the program
- the software "Intelligent Feeder System" displays the article number and feeder position in the user interface (light yellow = missing, dark yellow = wrong position, red = wrong article)



Screen-Printing

- load print program (IFS checks if the right program has been loaded)
- load circuit boards, stencil and paste into the printer (also monitored by the IFS)
- the panel ID is scanned in front of the printer and released for printing only if the printer data is correct



Factory Monitor

LINE2

LINE_2

GKG-01

802463 screen printin

M03

R

F 100%

802463 SMT

LINE2

M04

R

TS1 100%

F 100%

802463 SMT

RS-800-01

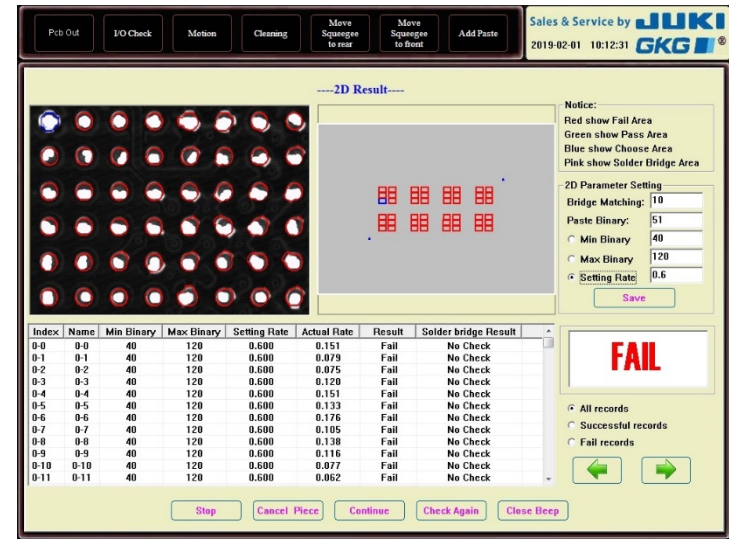
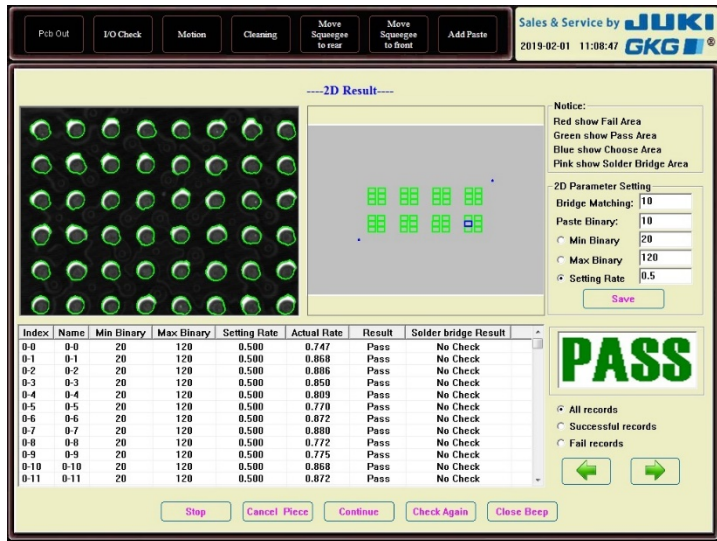
24078 802463

Setup GKG-01 for 802463 at screen printing (bottom):

Position	Vorgang	Artikelnummer
BOARD	OK	31068
PASTE	OK	24453
STENCIL	OK	STENCILPN (S802463B)
	OK	802463E Bot

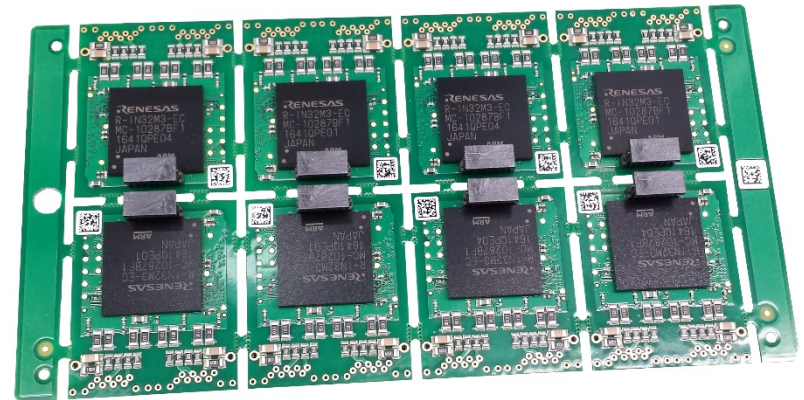
Solder Paste Inspection

- after the circuit board is printed, the vision camera checks the pads for their solder paste coverage
- results are stored by the IFS in the database



Automatic Placement

- placement machine scans the panel ID and stores all placement data in the database
- MAC addresses are placed by the machine



Linking MAC addresses to Panel ID

- the area scanner scans the individual MAC addresses and links them to the panel ID
- assembly data of the machines are stored with the individual MAC addresses



JUKI

Product Traceability Report

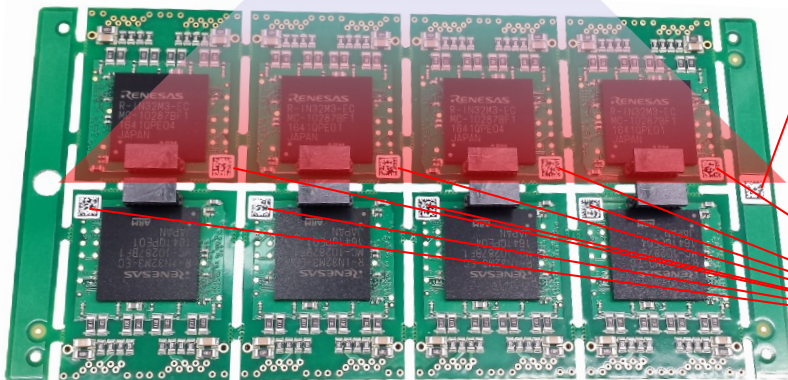
Generated on 09/17/2019 12:03:25 PM

Lot Number:	2000512	Product Type:	PCB
Batch ID:		Current Operation:	Not in WIP
Part Number:	802463		

panel ID

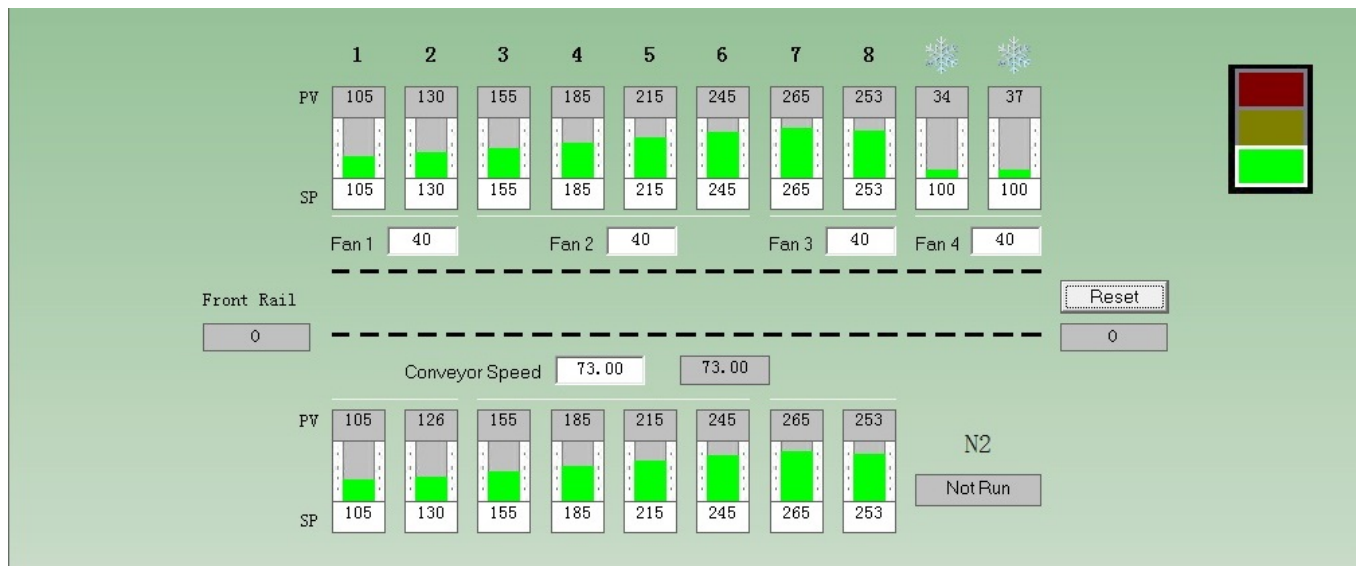
Timestamp	Event Type	Operation	Route	Tool	Program ID	Rem. FL	User ID
2000512							
08/14/2019 9:42:35 AM	RELEASE PRODUCT	UNKNOWN	NON VALIDATED				Not Logged in
08/14/2019 9:43:28 AM	START OPER	screen printing (bottom)	NON VALIDATED	GKG-01	802463E Bot		Not Logged in
08/14/2019 9:44:24 AM	PTDATA	screen printing (bottom)	NON VALIDATED	GKG-01			CAMX EVENT PROCESSOR
08/14/2019 9:44:24 AM	END OPER	screen printing (bottom)	NON VALIDATED	GKG-01			CAMX EVENT PROCESSOR
08/14/2019 9:44:25 AM	START OPER	SMT	NON VALIDATED	LINE2			CAMX EVENT PROCESSOR
08/14/2019 9:44:25 AM	START OPER	SMT	NON VALIDATED	M03	802463		CAMX EVENT PROCESSOR
08/14/2019 9:44:25 AM	START OPER	SMT	NON VALIDATED	M04	802463		CAMX EVENT PROCESSOR
08/14/2019 9:44:36 AM	START OPER	SMT	NON VALIDATED	M03 (FRONT)	802463		CAMX EVENT PROCESSOR
08/14/2019 9:45:44 AM	END OPER	SMT	NON VALIDATED	M03 (FRONT)			CAMX EVENT PROCESSOR
08/14/2019 9:48:23 AM	START OPER	SMT	NON VALIDATED	M04 (FRONT)	802463	6 d 21 h 3 m	CAMX EVENT PROCESSOR
08/14/2019 9:50:11 AM	END OPER	SMT	NON VALIDATED	M04 (FRONT)		6 d 21 h 1 m	CAMX EVENT PROCESSOR
08/14/2019 9:53:33 AM	END OPER	SMT	NON VALIDATED	LINE2		6 d 20 h 58 m	Not Logged in
08/14/2019 9:53:33 AM	END OPER	SMT	NON VALIDATED	M03		6 d 20 h 58 m	Not Logged in
08/14/2019 9:53:33 AM	END OPER	SMT	NON VALIDATED	M04		6 d 20 h 58 m	Not Logged in
08/14/2019 9:53:33 AM	Split to 2E090A03DE78						
08/14/2019 9:53:33 AM	Split to 2E090A03DE7E						
08/14/2019 9:53:33 AM	Split to 2E090A03DE7B						
08/14/2019 9:53:33 AM	Split to 2E090A03DE81						
08/14/2019 9:53:33 AM	Split to 2E090A03DE84						
08/14/2019 9:53:33 AM	Split to 2E090A03DE8A						
08/14/2019 9:53:33 AM	Split to 2E090A03DE8D						
08/14/2019 9:53:33 AM	Split to 2E090A03DE87						

8x MAC addresses



Reflow

- after all addresses and placement data of the machines have been recorded, the circuit board is released for the soldering process
- the IFS checks if the correct program for soldering is loaded



Benefits of IFS and Traceability

- the IFS monitors all parameters of the machines at any time and stops the transport of the circuit board if incorrect settings are detected
- all process data are stored at the MAC addresses and can be retrieved at any time
- in the case of a product recall, the affected products can be clearly identified
- only the absolutely necessary has to be recalled
- material damage can be clearly assigned to the supplier