Panasonic

Mastering today's any mix, any volume

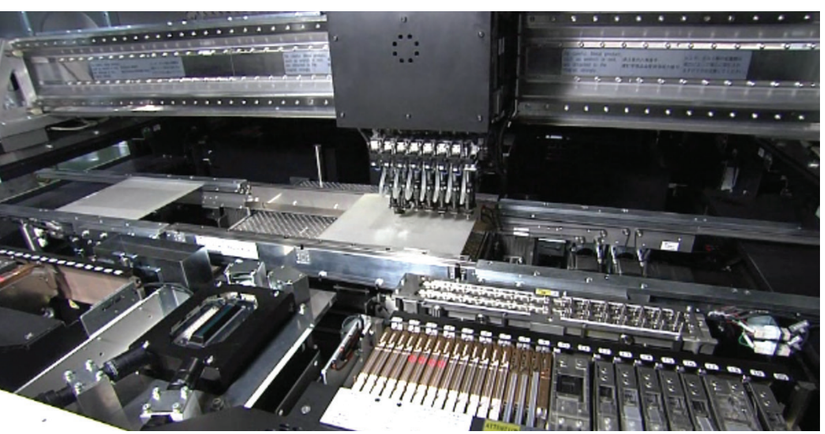
AM100

Your scalable, cost-effective solution for high mix and new product introduction

Smart Factory Solutions for any mix any volume

PanaCIM Enterprise Edition

Especially suited for high mix and NPI environments



Design concept

The AM100 combines the capability, flexibility and reliability you expect from Panasonic's award-winning NPM and PanaCIM® Manufacturing Execution (MES) into a cost-effective, high-mix solution.

Modular single-beam placement machine with a 14-nozzle head capable of placing an impressive component array at upwards of 35,800 cph with 160 reel inputs:

- Single head design for 01005 to 6" long connectors
- Pneumatic grippers and custom nozzles for odd-shaped parts
- Inherent capability for advanced processes

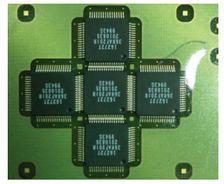
Non-stop changeover featuring Feeder Anywhere and Nozzle Anywhere enables online setup during production. Quality-enhancing features like a 3D camera, side-view camera, auto-support pin set up, board warp detection, and tray verification are also available.

Added value

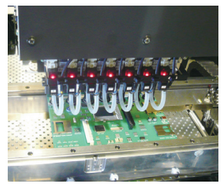
- Single-head solution with a vast component range
- Common feeders with CM and NPM Series
- Common programming and conversion tools available

EFFICIENT

- Asset utilization optimized by zero changeover
- Offline set-up, teach and changeover tools
- Highly-accurate, any-time inventory management: in-product, in-process, on-floor, in-drybox



Superb placement accuracy



Highly versatile head unit

Intelligent Feeder Anywhere

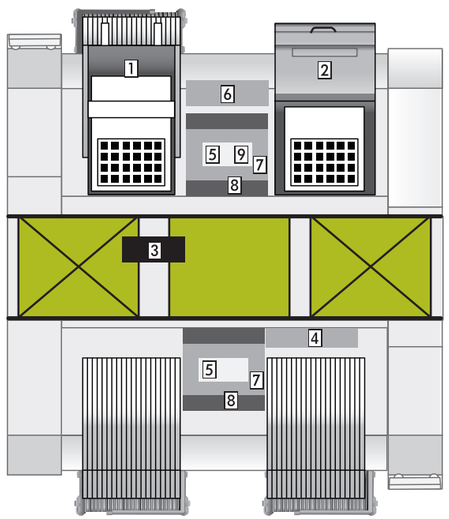
Machine layout and supply options

Rear left and rear right
Fixed feeder base
Feeder cart
Tray feeder 1
Tray tower 2

Front left and front right
Feeder bank
Feeder cart

Standard features
14-Nozzle head 3
Nozzle changer (Front side) 4
Line camera (Front side) 5

Options
Nozzle changer (Rear side) 6
Line camera 5
3D sensor (Rear side) 9
Stadium lighting 7
Side view camera 8



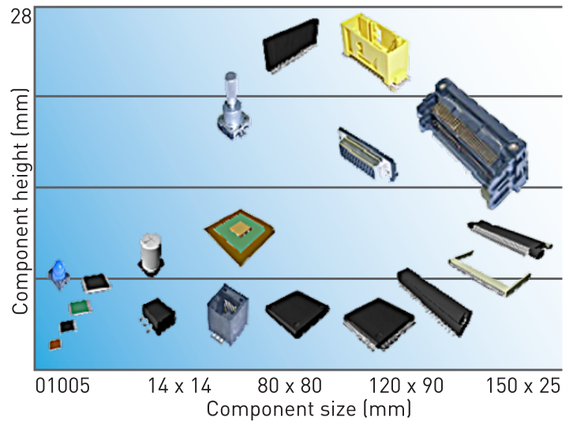
INTEGRATED

- For any machine platform or business system
- Communicates with various PCBA systems
- Multi-level traceability throughout SMT process

Part range

The AM100 balances productivity with versatility in a single head design using linear drives:

- Component range spanning 01005 chips to 6" (150mm) connectors over 1" (28mm) tall
- Multi-pitch, multi-width smart feeders are interchangeable with our CM and NPM Series
- Material Verification ensures error-free setup with Feeder Anywhere or quick exchange carts
- 2D barcoded nozzles and grippers simplify setup
- Auto calibration verifies accuracy during production without using fixtures



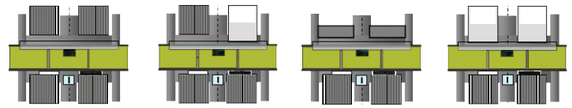
SCALABLE

- Match production levels to line capacity
- Integrate software modules when business dictates
- Single line facilities to multi-national corporations... over 100,000 solutions installed worldwide

Numerous compositions, unlimited possibilities

Machine configurations

A common frame, gantry, vision, and head placement system form the foundation for myriad configurations depending on production needs. More importantly, this commonality provides an inherent investment protection, which allows onsite modification to integrate new features and options as technologies evolve.



Feeder cart
- Integrated fiducials and tape cutter
- Single button exchange of 40 part numbers
- Supports tape, tube, bulk and custom feeders

Feeder bank
- Handles 40 part numbers, integrated tape cutter
- Quick bank setup via Feeder Anywhere
- Supports tape, tube, bulk and custom feeders

Tray elevator
- On-the-fly reload sequence
- Magazine-fed system
- 20 unique tray levels

Manual tray pallet
- Two unique tray locations
- Easily removable for added feeder capacity
- Accomodates ten part numbers of strip tape

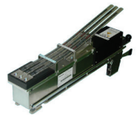
Line configurations

One machine solution Great versatility, allowing production to start with a single machine		• Mounts entire range of components from chips to leaded and array components • Fixed feeder banks reduce investment • 60 feeders, 20 trays, 35,800 cph
General purpose line Providing the best balance of cost and net productivity		• High productivity and balance across both machines • Grip nozzle supported (chuck size can change) • 140 feeders, 20 trays, 71,600 cph
High-mix, low-volume manufacturing solution A group of modules to support increased productivity in high-mix, low-volume manufacturing		• Higher feeder count allows for family setup • On-the-fly changeover during production • 220 feeders, 20 trays, 107,400 cph
Cost-effective total line solution Panasonic SPG printer boosts productivity and quality		• Automatic changeover capability with 15-second pulse rate • One contact support • 140 feeders, 20 trays, 71,600 cph

Catalog of options

Intelligent tape feeders
- Common with CM and NPM Series
- Multi-pitch, multi-width feeders reduce investment
- Self-adjusting with auto teach and splice detection
- Safely Hot Swap during production
- 4 x 1mm pitch available

Special feeders
- Common with CM and NPM Series
- Tape up to 104mm wide
- Deep pocket and large reel options

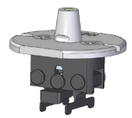


Stick feeder
- Common with CM and NPM Series
- Panasonic-designed feeder supports up to three tubes
- Custom guides and options available

Support station box
- Reduces changeover time with offline cart setup
- Wireless scanner guides operator through setup
- Combine with PanaCIM Material Verification for correct setup

Multi-function transfer unit
- Linear slide with auto reload for successful PoP process
- Supports solder and flux
- Programmable squeegee gap

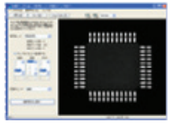
Nozzles
- Long-life ceramic design
- Integrated 2D barcode for Nozzle Anywhere setup
- Lifetime traceability of nozzle history with 2D barcode



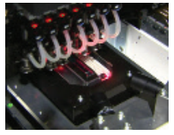
Gripper
- Pneumatic, adjustable stroke
- Integrated 2D barcode for Nozzle Anywhere setup
- Compatible with nozzle holder for on-the-fly changes

Custom nozzles
- Eliminate manual placement with custom vacuum and gripper tools
- Local design expertise with quick turnaround
- Thousands of special designs

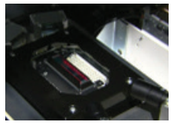
Material verification
- Provides authenticated setup and fast changeover
- Manages alternate component part numbers and supply types
- Operator login tracks actions



Offline vision data system
- Easily create files offline and save directly to program
- Performs data reliability test
- Uses same vision recognition system as machine platform

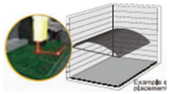


Component vision series
- Digital, color line scan system
- Front, side and stadium lighting
- 80 x 80mm field of view
- Only one camera type needed for complete part range



3D vision inspection
- Industry's only 3D laser reflection scanning system
- Simultaneously combines X, Y, and Theta alignment with coplanarity
- Measures bump and lead height

Side-view camera
- CCD camera measures part thickness to detect abnormal pickup
- Verifies nozzle tip status
- Ideal for 0201 and smaller chips



Board warp mapping
- Head-mounted laser system measures board topography
- Controls part placement height
- Measurement data shared downstream

Automated board support
- Utilizes DGS data to position pins for complete support
- Eliminates manual pin placement errors
- Reduces changeover time

Essential capabilities for new product introduction

New product introduction

Competitive pressures, cost challenges and increased customer expectations are driving improvements in the way manufacturers develop and introduce products to the market. Whether cultivating internally-born ideas as an OEM or responding to customer requirements as an EMS, the new product introduction process is mission-critical to speed up "time-to-market" and your company's success. Panasonic solutions provide the following capabilities that are essential for effective execution of new product introduction:

Setup verfication

- Material verification guides feeder setup
- Machine confirms setup, reels, trays, part numbers and data
- DGS verifies program integrity

PanaCIM

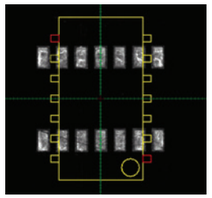
Scanner controls setup

Scan barcode

Load reel onto feeder

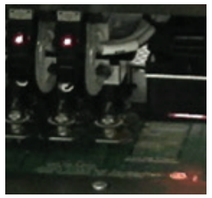
Place feeder onto correct cart

Machine verifies correct parts



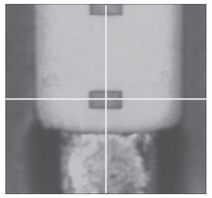
Online component teach

- Automatically teach basic or complex component shapes
- Retrieve rejected component images from production and reteach offline
- Accepted changes sync to master database library



Fiducial teach and adjustment

- Lighting automatically adjusts for fiducial recognition
- Change shape, colors, dimensions or location
- Accepted changes sync to master database library

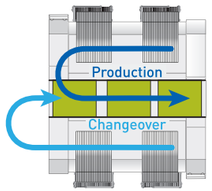


Automatic feeder teach

- Aligns first component pick
- Adjusts component orientation and index speed
- Auto pick correction

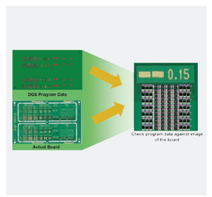
Offline component teach

- Create parts library offline on the same system as machine
- Minimize machine downtime
- Generates tested vision file



Changeover mode

- Continue production on one side of the machine while changing over on the opposite side
- Uses quick change carts with Nozzle and Feeder Anywhere
- Hot swapable intelligent feeders



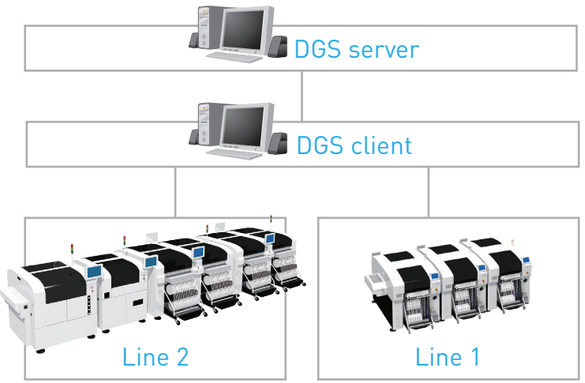
Virtual PCB inspection

- Graphically overlays DGS Program Data on PCB image to ensure proper alignment and rotation
- Validate placement offline to preserve live components for production
- Easily adjust X, Y and Theta

DGS and PanaCIM®, designed to work together

Software and Programming

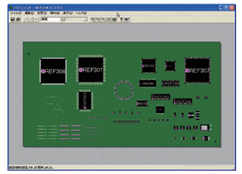
DGS (Data Generation System) is our intuitive, PC-based programming software. Taking line balance into consideration, it assigns parts from CAD data, optimizes and then creates the placement program for the line.



PanaCIM Enterprise Edition

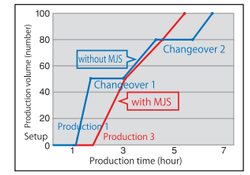
PanaCIM Enterprise Edition effectively delivers a feature-rich, manufacturing software suite through a scalable, small-footprint appliance that can grow with the manufacturer, while providing unprecedented integration of Panasonic and best-in-class, complementary technology partner equipment.

A locally-developed Manufacturing Execution System (MES) sustained by an extensive global support infrastructure, cost-effective PanaCIM Enterprise Edition solutions ensure manufacturers can focus on their core competencies, while Panasonic supports the enterprise.



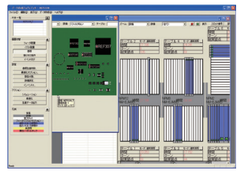
Multi-CAD import

retrieves data and allows for properties like polarity to be checked in advance



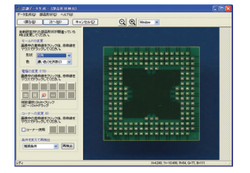
Multi-line optimizer (option)

Optmizes production data to commonly arrange component feeder units



Simulator

provides on-screen confirmation in advance



Off-line component data creator (option)

Creates component data using a store bought scanner

Component library

Registers and unifies the component data of all placement machines

Differentiating features

- Panasonic has over 50 years of exceeding customer needs with proven industry excellence in SMT and over 100,000 solutions installed
- Complete MES software solutions for Smart Factories – developed in the US, deployed and supported globally
- Built on a solid, innovative history of connecting "things" for nearly 100 years... We are Industry 4.0 ready

Cloud level

Enterprise level

Facility level

Line level

Machine level

ANY LEVEL

PanaCIM is a multi-level, MES solution spanning from the machine to cloud levels.

AM100

Built with technologies that move us

Specifications

Model name (Number)		AM100 (NM-EJM4D)
Concept		Scalable single gantry hybrid drive platform
Drive system		Highly accurate linear motor hybrid drive
Component alignment		Digital color line scan camera, fixed position
Head design		14-spindle ultra high flex head
Board dimensions		510 x 460mm (20 x 18") standard
		1,200 x 460mm (47 x 18") optional
		1,500 x 460mm (59 x 18") optional
Board thickness		Up to 8mm
Placement accuracy		±40 micron Cpk ≥1.0 chip
		±30 micron Cpk ≥1.0 QFP
Throughput	Ideal	35,800 cph
	IPC9850	22,000 cph
Component range	Minimum	01005 (0402M)
	Maximum	120 x 90mm (4.7 x 3.5") and 150 x 25mm (6 x 1")
	Height	Up to 28mm (1.1")
	Bumps	0.15mm diameter, 0.5mm pitch
Feeder capacity	Reels	Up to 160 reels
	Tubes	Up to 78 tubes
	Trays	Up to 40 trays
	Strip tape	Up to 200 part numbers, optional
Facilities	Electric	Three-phase AC 200/220V ±10V,
		AC 380/400/420/480V ±20V 2.0 kVA400V 2 KVA
	Pneumatic	Min 0.5 MPa to Max 0.8MPa, 200 L/min (A.N.R.)
	Mass	2370 Kg (Main body with four feeder banks)
	Dimensions	W 1,970 x L 2,019 x H 1,500mm

Features

14-nozzle highly versatile head	●
High resolution line camera	●
Nozzle changer	●
CAD data import utility	●
Pre-defined part library	●
Adaptive component pick	●
Auto placement calibration	●
Multi-line optimizer (MLO)	○
Auto feeder teach	●
Fiducial teach with auto adjust	●
Virtual PCB inspection	○
PoP process capable	○
NPI software tool set	●
Feeder banks (Fixed base)	○
Feeder exchange capability	○
Tray tower (20 positions)	○
Manual tray feeder	○
Rear line camera	○
Rear nozzle changer	○
Intelligent Nozzle Anywhere	●
Intelligent Feeder Anywhere	●
3D vision inspection	○
Side view component camera	○
Board warp mapping	○
Automatic board support	○
Auto load spliceless feeder	○
LED binning software	○

Standard ● Available ○

Panasonic

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