

Panasonic



# NPM SERIES

Any-mix manufacturing solution for evolving assembly needs



Award Winner

Global SMT & Packaging  
Technology Award  
Pick and Place



Award Winner

Circuits Assembly  
NPI Award  
Automation Tools



Award Winner

Circuits Assembly  
NPI Award  
Component Placement

total solutions for  
**any mix**  
**any volume**

# DESIGN CONCEPT

Over 50 years of exceeding customer needs  
with proven industry excellence...  
and over 100,000 solutions installed

The rapid industry acceptance of the award-winning NPM platform is based on its inherent design flexibility. Each NPM is a completely integrated, single-platform solution that can provide far-reaching solutions to expand and evolve with your electronics assembly needs. In addition to its interchangeable, plug-and-play heads, the NPM can integrate solder paste inspection (SPI), automated optical component inspection (AOI), and dispensing. Yet, when requirements change, so can the NPM. Simply swap heads to add new machine functionality and investment protection.

As always, manufacturers can scale NPM lines to meet production needs while conserving investments until production or technology requirements mandate. OEMs and EMS providers can reconfigure both machine heads in approximately 15 minutes—maximizing flexibility and ROI, while protecting assets. The NPM also incorporates existing feeders, carts, and nozzles to minimize investment and inventory expenses.



## Americas Support

- Service
- Sales
- Training

## 50+ YEARS IN PCBA 1963–2015

1963	Panasonic Factory Solutions Founded
1968	1st Insertion Machine Developed
1973	1st Axial Machine Delivered
1980	1st Surface Mount Machine Delivered
1988	10,000th Solution Installed
1988	PFSA Established for North American Market
1992	Microelectronics Group Expands Offerings
1993	ISO Standard Certifications
2000	30,000th Solution Installed
2000	PanaCIM Enterprise Edition Released
2012	Total Solutions for "Any Mix, Any Volume"
2014	100,000th Solution Installed
2015	NPM-W2 & D3 with Multi Recognition Camera

## NPM-D3

The award-winning NPM-D3 continues in the steps of its predecessor with interchangeable dispensing, placement, and inspection heads—plus new enhancements to further increase productivity. A reinforced frame, advanced head, and award-winning Multi Recognition Camera improve placement accuracy by 25%, while boosting IPC-9850 throughput 30% to an industry-leading 38,078 cph per square meter.

### Features & Benefits

- Flexible board handling system converts to support single-lane and multiple dual-lane operation modes depending on your needs
- Compact system footprint and dual-side operation maximizes factory floor space utilization, while allowing fast production scalability
- Integrates the industry's only field-scalable Multi Recognition Camera that combines alignment, thickness, and 3D coplanarity into one time-saving, process-improving step

### Application Solutions

The NPM-D3 is an industry standard building block in high-speed, high-volume applications ranging from automotive to mobile to memory. In fact, the vast majority of top smartphone manufacturers and automotive EMS providers choose Panasonic solutions.

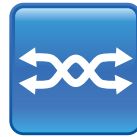
### Award-winning features common to the NPM Series:

- Quick change heads, carts, and nozzle banks with auto board support
- Fungible assets include feeders and nozzles to protect your investment
- Board warp detection, Advanced Process Control (APC), and Multi Recognition Camera boost yield
- High accuracy, low maintenance, linear motor-driven, dual gantry system



#### Scalable

- Match line capacity to production needs
- Integrate software modules when business dictates
- Single-line facilities to multi-nationals



#### Integrated

- For any machine platform or business system
- Communicates with numerous peripheral systems
- Multi-level traceability throughout the SMT process



#### Efficient

- Asset utilization optimized by zero changeover
- Offline set-up, teach, and changeover tools
- Highly-accurate inventory management



### NPM-W2

The new NPM-W2 amplifies the NPM-W capabilities with a 10% throughput boost and 25% accuracy improvement. It also integrates innovations like our incomparable, award-winning Multi Recognition Camera. Combined, these features extend the component range down to the 03015mm microchip, yet preserve capability to handle 120x90mm components up to 40mm tall and nearly 6" long (150mm) connectors.

#### Features & Benefits

- Combine various high-speed and flexible head options to handle nearly any application, including large, odd-form parts like snap-fit connectors requiring upwards of 50N placement force
- Setup multiple products with 120 reels on quick-change carts
- Award-winning camera technology merges component alignment, chip thickness, and 3D coplanarity inspection into a single pass, which helps ensure high productivity and quality control

#### Application Solutions

With additional feeder capacity and a larger board size, the inherent capabilities and superior flexibility of the NPM-W2 position it as an advanced solution for industrial and automotive manufacturers, as well as EMS providers at any level.



### NPM-TT

The NPM-TT complements our award-winning platform by bolstering the printed circuit board assembly process with front and rear tray towers plus feeder slots for tape reels. Its twin tray configuration enables independent mode, dual-lane production. Additionally, its dual-lane board handling allows increased production of one or more unique products simultaneously; yet, easily converts to single-lane mode for larger board sizes.

#### Features & Benefits

- Extended component range is ideal for end-of-line applications
- Interchangeable, 20-input, twin tray magazines maximize product changeover efficiency and afford offline setup
- Easily replace tray tower carts with tape feeder carts as production setups change to maximize asset utilization
- Excellent companion to the NPM-D3, especially when operating in a high-volume, dual-lane production environment

#### Application Solutions

Capability and versatility position this as a high-volume, odd-form mounter for components from tape- or tray-fed parts. By automating certain end-of-line components, the NPM-TT can help manufacturers further reduce costs by eliminating pre-reflow or pre-wave solder manual part insertion.



# PROCESS CAPABILITY

Printed circuit board assembly includes several processes to ensure high-quality production, which historically meant investing in standalone equipment for dedicated processes like placement, dispensing, and inspection. Today, our NPM Series provides solutions for multiple assembly processes. More than a placement machine, the NPM allows you to configure the platform with heads for component placement, material dispensing, optical inspection, and even a combination of processes. In one single platform, the NPM Series provides a true lean solution—doing more with less and improving your return on investment.

## PLACEMENT HEADS

An array of four component placement head variations are available on the NPM series. With its linear motor, dual-gantry system, manufacturers can configure two heads on each machine to maximize line throughput, amplify line flexibility, or blend both for superior production versatility.

### 16-Nozzle Head Ultra High Speed Chip

- 42,000 cph per head
- 03015 to 6x6mm
- Up to 3mm tall
- 25 micron accuracy



### 12-Nozzle Head High Speed Chip

- 34,500 cph per head
- 01005 to 12x12mm
- Up to 6.5mm tall
- 30 micron accuracy



### 8-Nozzle Head Versatility

- 21,500 cph per head
- 01005 to 32x32mm
- Up to 12mm tall
- 30 micron accuracy



### 3-Nozzle Head Multi-function

- 8,000 cph per head
- 0201 to 150mm long
- Up to 40mm tall
- 50N placement force



## DISPENSE HEAD

The NPM is more than a mounter, it is a process solution. By simply swapping a placement head with the dispense head, one can convert an NPM into a multi-functional machine with the ability to mount and dispense. This is especially suitable when handling large or oversized components, processing double-sided reflow boards, or corner-bonding CSPs.

- Auger-valve ensures stable, high-speed dispensing
- Support patterns like dots or lines, as well as adhesives and solders
- Non-contact dispensing enabled with board height sensor



### Award-winning features common to the NPM Series:

#### Nozzles

- Long-life ceramic design
- Integrated 2D barcode for Nozzle Anywhere setup
- Compatible with quick-change, high-capacity nozzle holder
- Locally designed nozzles and grippers



#### Gripper Nozzles

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



#### Board Warp Mapping

- Head-mounted laser system measures board topography
- Controls part placement height
- Shares measurement data downstream



#### Automated Board Support

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



One of the world's  
strongest patent  
portfolios...  
perennially in  
the top 4

## INSPECTION HEAD

Convert the NPM from a mounter to a process solution by exchanging a mount head with our inspection head to perform AOI and SPI. The NPM will automatically switch from AOI to SPI based on the program. What's more, the data collected is automatically linked to quality information for each process and enables Advanced Process Control (APC) implementation.



- Solder inspection detects issues including oozing, blurring, misalignment, and bridging
- Optical inspection measures missing, shifted, flipped, or inverted polarity
- AOI combined with mount head is ideal for inspection prior to shield placement

## PACKAGE-ON-PACKAGE

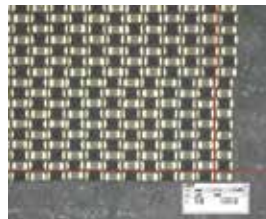
As part of our industry-leading patent list, we continuously pioneer new technologies and techniques. Panasonic helped establish the PoP assembly process over a decade ago. Since then, PoP has matured and many designers are adopting it to drive miniaturization, lower costs, and improve performance. Panasonic has the ability to guide the industry with manufacturing best practices gleaned from being a global manufacturing leader.



- 3D component and feature inspection boosts production yields
- Plug-and-play Multi-function Transfer Unit (MTU) installs in minutes
- Auto flux refill with servo linear slide and programmable squeegee gap

## NEXT GENERATION MICROCHIPS

For years, Panasonic has been helping manufacturers mount the continually shrinking chip. Today, the tradition continues as we publish techniques and develop processes to ensure manufacturers successfully adopt next generation microchips like the 03015mm and 0201mm, which are upwards of 60% smaller than the 0402mm (01005). Not only does Panasonic understand the technology to mount these microchips, our company is developing these microchips for manufacturing implementation. From parts to process, Panasonic is positioned to help manufacturers address challenges.



20 micron interspaced capacitors and resistors

- "Active Calibration" ensures accurate placement at production speeds
- Industry's only multi-recognition 3D vision system increases output and reduces defects
- Patented Advanced Process Control (APC) inspection further minimizes DPMO

## ADVANCED PROCESS CONTROL

Numerous studies detail how solder reflow affects component placement, especially if the component is off pad. However, shrinking component dimensions and pitch are opening doors to explore how APC can improve yields in

high-density placements. APC collects, analyzes, and applies SPI data so parts are placed onto solder rather than onto pads. This self-aligning process increases yield and reduces defects even when a printing process exceeds set limits.



# FEEDING SOLUTIONS

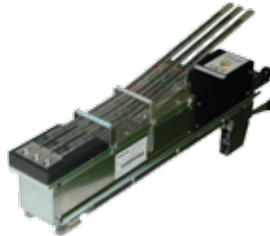
## Intelligent Tape Feeders

- Common with the AM, CM, and NPM Series
- Adjustable-width feeders reduce investment
- Auto-calibration technology
- Closed-loop splice detection
- Hot-swappable during production
- Thin 8mm, 4x1mm, and 104mm available
- Deep pocket and large reel options



## Intelligent Stick Feeder

- Common with the AM, CM, and NPM Series
- Configurable from one to three sticks
- Locally designed, custom guide blocks



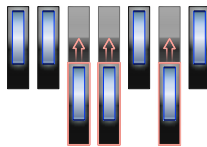
## Tray Tower

- Twin and single tray tower options
- Quick-exchange magazine
- On-the-fly replenishment
- JEDEC® and vacuum-formed trays
- Front, rear, and twin tray configurations



## Intelligent Feeder Anywhere

- Hot-swap feeders on-the-fly during production as an alternative to splicing
- Simply install feeders in available slots—program auto-adjusts, hastening changeover



## Feeder Carts

- Cordless, quick-exchange operation
- Automatic, precise registration
- Integrated tape cutter/waste management



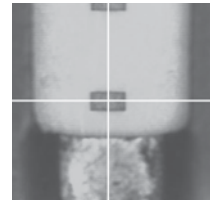
## Support Station Box

- Guides operator through setup
- Reduces changeover time with off-line feeder cart setup
- Combine with PanaCIM Material Verification for accurate setup



## Automatic Feeder Teach

- Auto-aligns first pick position
- Adjusts orientation and index speed
- Accommodates tape pocket variation
- Compatible with tape, stick, and tray



## LCR Meter Station

- Validate electrical values of passive devices
- Closed-loop integration with PanaCIM Material Control and Material Verification



## Feeder Setup Navigator

- Optimizes setup processes by incorporating production requirements
- Factors labor and material availability

## Component Supply Navigator

- Optimizes component replenishment events
- Flexible for single and multi-line installations
- Increases labor efficiency

from Setup



to Replenishment

# SET UP VALIDATION

## Material Verification

- Provides authenticated off-line setup—fast and accurate changeover
- Manages alternate component part numbers and supply types
- Operator login tracks actions

## Setup Verification

- Material Verification guides feeder setup
- Machine confirms setup, reels, trays, part numbers, and data
- Data Generation Software (DGS) verifies program integrity



# VISION CAPABILITIES

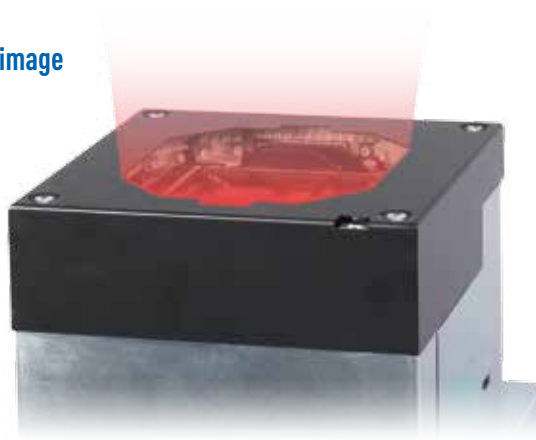
New, evolutionary, Multi Recognition Camera is the first field-scalable system to combine three unique imaging capabilities—complete with fast, accurate, 3D coplanarity measurement.

## High-speed, high-precision, digital image recognition solution includes:

- 2D and 3D alignment and inspection
- Component thickness
- Pick-up irregularity
- Flipped component

## 3D CMOS Sensor detects:

- Lifted fine-pitch IC leads
- BGA or CSP coplanarity
- Missing or deformed solder balls



## Vision-based NPI Tools

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:

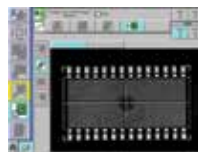
### Off-line Component Teach

- Create parts library off-line on the same system as machine
- Minimize machine idle time
- Generates tested vision file



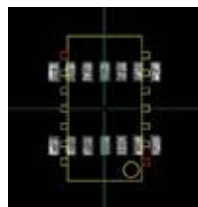
### Off-line Vision Data System

- Easily create files off-line and save directly to program
- Perform data reliability tests
- Uses the same vision recognition system as the machine



### On-line Component Teach

- Automatically teach basic or complex component shapes
- Retrieve component images and adjust with "digital calipers"
- 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



## Award Winner

### Circuits Assembly

NPI Award

*Production Solution*

## Improve Yield

Identify mis-picked chips down to 03015s, recognize deformed leads or flipped ICs, pinpoint missing or damaged balls, and inspect nozzle tips

## Boost Speed

Increase IPC-9850 throughput speed by nearly thirty percent

## Save Money

Configure the camera knowing it can be quickly and easily field modified

## Enhance Quality

Merge three vision processes into one to help meet stringent demands of highly complex products without sacrificing line throughput

**The vast majority  
of top smartphone  
manufacturers and  
automotive EMS providers  
choose Panasonic  
solutions**



# BOARD HANDLING

## Single-lane Board Handling

Innovation beyond traditional board handling brings additional features, including multi-board staging for smaller boards and board shuffling for LED luminaries nearly 48" long.



### Automated Board Support

- Programming data automatically positions support pins
- Eliminates manual pin placement errors
- Reduces changeover time



### Long Board Handling

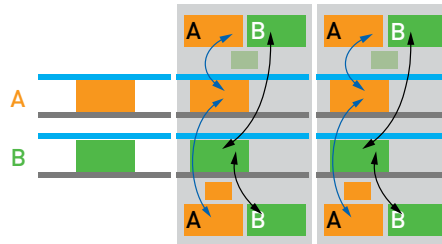
- Process 1,200mm long LED panels without sacrificing ability to handle smaller boards

# FLEXIBLE, DUAL-LANE BOARD HANDLING

The core of our board handling begins with a versatile system incorporating programmable, adjustable position rails which quickly convert from single-lane to dual-lane mode based on the product program. When running in a single lane, several rails are "parked" to ensure maximum panel size. Yet, when production needs change, so can board-handling. Based on optimized production feedback from our DGS programming software, the system will automatically convert into Shared-, Independent-, or Hybrid placement modes to maximize production efficiency.

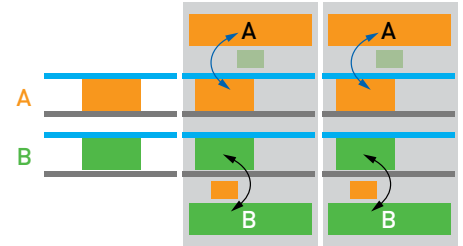
## Shared-mode

- Both heads populate same board, same lane
- Eliminates PCB transfer time
- Maximizes feeder slot utilization



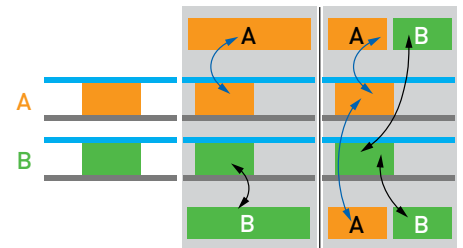
## Independent-mode

- Heads only populate board in closest lane
- Maximizes throughput and promotes on-the-fly product and cart changeover
- Independent changeover



## Hybrid-mode

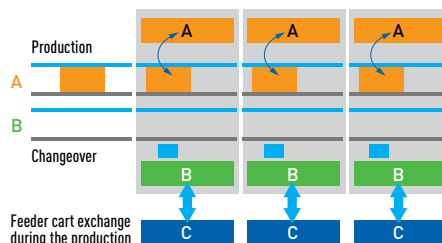
- Blends Shared- and Independent-modes within a line to maximize efficiency
- Maximizes asset utilization and minimizes capital investment



# INDEPENDENT CHANGEOVER

In the past, changeover required all placement machines in the line to complete the product build before an operator could begin any changeover process. In a single machine line, this effort is less of a burden than in a line with multiple machines.

With our new innovations, operators can remove feeders—even carts—during production to facilitate a time-efficient changeover. This new feature is appealing in a single-lane board system—the operator can begin to change over the machine as production continues.



The concept of independent changeover is amplified in our dual-lane system. In Independent-mode, each lane is building a unique product—two products in one machine at a time. When a changeover is required on either lane, the operator can begin to remove and exchange all the feeder carts on one lane and roll new carts into the machine. All the while, production continues uninterrupted on the other lane. Besides changing the feeders and carts, the system automatically repositions board support pins.

Our expertise in lean manufacturing techniques is clearly demonstrated with a thorough set of features to eliminate product changeover burden and provide the ideal changeover for your production.



**4K Ultra HD Technology**  
**>15,000 sq ft LED Solution**  
**installed at**  
**Churchill Downs,**  
**Louisville, KY**



# SOFTWARE AND PROGRAMMING

## Data Generation System

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



## Multi-CAD Import

- Retrieves data and allows properties like polarity and position to be verified on-screen



## Component Library

- Registers and unifies component mount data
- Large library of standard component definitions available



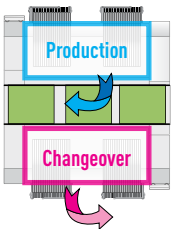
## Simulator

- Provides on-screen confirmation in advance of production



## Virtual PCB Inspection

- Overlays program data on board image to validate or adjust component alignment and rotation



## Changeover Mode

- Continuous production on one side of the machine while changing over the opposite side

**Complete MES software solutions  
for digital manufacturing...  
developed in the US,  
deployed globally**



## Award Winner

**Circuits Assembly**  
NPI Award  
Production Software



## Award Winner

**Global SMT & Pkg**  
Technology Award  
Best Product Americas



**PanaCIM**  
Enterprise Edition

PanaCIM integrates cooperating software modules to solve key production problems by addressing the top objectives for successful manufacturing.

## Customizable

The PanaCIM modules were developed based on user feedback to provide a complete assembly software suite. Select the best modules for your current situation and easily add others as needed.

Cloud-level	Seamless integration of business systems
Enterprise-level	Connect all departments to schedule and analyze production and integrate with MRP/ERP systems
Facility-level	Ensure visibility to track WIP, dispatch operators, and take proactive measures
Line-level	Manage OEE through traceability, WIP tracking, and automated changeover
Machine-level	Machine-to-machine communication to assure yield, materials, and quality

## PanaCIM<sup>®</sup> *express*

### Eliminate IT infrastructure costs with PanaCIM Express

A self-contained, pre-configured system especially for smaller installations requiring digital data collection, yet do not have dedicated IT staff.



# APPLICATIONS

The extensive ways to deploy the modules amplify the inherent versatility of the NPM Series. With applications spanning low volume industrial OEM runs to ultra-high volume LED luminaries production and everything in between, the NPM is truly a solution for Any Mix Any Volume production. The following configuration examples serve to highlight a select few applications where the NPM Series excels:

## Versatile EMS Line NPM-W2



- Flexibility to build nearly 1.5m long LED PCBs
- Multiple LED Binning control options
- Versatile to build broad array assemblies with superior quality and output at mid-tier EMS providers

### Broad EMS applications including LED boards up to 1,200mm x 510mm

- Optional dual-lane board handling with on-the-fly bank change
- Throughput: Configurable from 46,000 to 154,000 (as shown)
- Inputs: Up to 240 8mm inputs or 206 8mm inputs + 20 trays
- Part Range: 03015 chips to 120mm x 90mm, up to 40mm tall
- Accuracy: 25 microns at  $\geq 1.0$  Cpk
- Vision: Awarding-winning Multi Recognition Camera
- Footprint as shown: 3.76m x 2.57m

## Automotive/Industrial Application Line NPM-W2



- Highly flexible production line
- Capacity to support multiple product and family setups
- Process workorders without excess WIP and on-the-fly changeovers

### Dual-lane board handling with on-the-fly bank change for reciprocating PCB Manufacturing and minimal WIP

- Boards: Dual-lane 1,200mm x 260mm, Single-lane 1,200m x 510mm
- Throughput: Configurable from 80,000 to 385,000 cph (as shown)
- Inputs: Up to 600 8mm inputs or 566 8mm inputs + 20 trays
- Part Range: 03015 chips to 120mm x 90mm, up to 40mm tall
- Accuracy: 25 microns at  $\geq 1.0$  Cpk
- Vision: Awarding-winning Multi Recognition Camera
- Footprint as shown: 7.0m x 2.57m

## High Volume LED Display/Mobile Device Line NPM-D3



- Line is capable of 370,000 cph actual output
- Maximum output per square meter
- Multiple LED Binning control options

### Nimble board handling provides reciprocating PCB manufacturing to maximize output per square meter

- Boards: Dual-lane 510mm x 300mm, Single-lane 510mm x 550mm
- Throughput: Configurable from 99,000 to 756,000 (as shown)
- Inputs: Up to 612 8mm inputs or 578 8mm inputs + 20 trays
- Part Range: 03015 chips to 120mm x 90mm, up to 30mm tall
- Accuracy: 25 microns at  $\geq 1.0$  Cpk
- Vision: Awarding-winning Multi Recognition Camera
- Footprint as shown: 7.49m x 2.65m

## Large Part/Odd-form Placement NPM-TT



- Alleviate manual assembly and reduce hand insertions by up to 66%
- Improve outgoing board quality
- Deliver high volume output and leverage versatility of tray-fed components

### High Volume Odd-form placement of tape/tray-fed parts to reduce manual assembly for pre-reflow or pre-wave solder

- Boards: Dual-lane 510mm x 300mm, Single-lane 510mm x 590mm
- Throughput: Configurable from 11,000 to 36,000 cph (NPM-TT)
- Inputs: Up to 120 8mm inputs or 52 8mm inputs + 40 trays
- Part Range: 01005 chips to 120mm x 90m, up to 30mm tall
- Accuracy: 30 microns at  $\geq 1.0$  Cpk
- Vision: 2D, 3D, and Chip Thickness Sensor technology
- NPM-TT Footprint: 1.3m x 2.57m

# PRINTING SOLUTIONS

The rapid growth of electronic devices is driving manufacturers to modify assembly techniques by expanding and updating facilities or assets, cost-engineering, implementing new processes, and reducing costs. The potential to build scrap increases dramatically. A balance between costs and output must be struck while maintaining quality. A trending option is low-cost printing material; however, process stability is key. Panasonic can help your process.

- Twice the accuracy of competitive offerings regardless of mix or volume 5 microns at  $6\sigma (\pm 3\sigma) \geq 2.0$  Cpk
- Robust to use low-cost materials and consumables—while delivering high yields
- Dual-lane is not only for high volume—it's ideal for any mix any volume production



Providing  
world-class solutions  
for industrial,  
communications,  
automotive,  
and more...  
regardless  
of company size

# TOTAL SOLUTIONS

Many suppliers claim to provide total solutions, but for Panasonic Factory Solutions Company of America the notion of "Total Solutions" carries a very meaningful and powerful connotation. As a leading electronics manufacturer with a deep and practical understanding of printed circuit board assembly, we have the unique perspective to understand what is required to solve your production challenge.

What's more, we have the distinctive ability to provide total solutions beyond the production line. While we can provide best-in-class hardware and software tools from our own portfolio, we are part of a supplier collective, which allows us to provide turn-key solutions for your unique application and business model. Yet, the equipment sets are mere building blocks to solving your manufacturing challenges, especially as our industry evolves with the Internet of Things.

# FACTORY OF THE FUTURE

Across the globe, the "Smart Factory" has been highlighted in many national initiatives. Regardless of the name, "Industry 4.0", "Advanced Manufacturing" or "Smart Factory", all efforts focus on transforming the manufacturing process from isolated silos to a "lean, agile, and integrated" ecosystem underpinned by the Internet of Things.

Since our humble beginnings, Panasonic founder Konosuke Matsushita focused on manufacturing innovation. In fact, we have been connecting "things" throughout the course of our nearly 100 year history.

Beyond patents, PanaCIM MES software developments are already enabling the connected factory and offering value beyond operational cost savings. It offers compelling solutions to collect and analyze disparate data, in real-time and across time, to transform the business. Furthermore, our software solutions offer opportunities for sustained value creation—and even disruption for those who can imagine the endless Factory of the Future possibilities.



# SPECIFICATIONS

Model Name (Number)		NPM-D3 (NM-EJM6D)	NPM-W2 (NM-EJM7D)	NPM-TT (NM-EJM3D)
Concept		Dual-gantry, Multi-head, Process-driven Module	Dual-gantry, Large Board, High Mix Module	Dual-gantry, End of Line, Twin Tray Module
Drive System		Dual-gantry, High Accuracy, Low Maintenance Linear Motor Drive System		
Component Alignment		Multi-Recognition Digital Camera		
Head Design Options		In-line array of 16-, 12-, 8-, 3-, or 2-nozzle heads		Inline 8- or 3-nozzle heads
Process Head Options		Dual-syringe Dispense, 2D AOI/SPI (High/Low Res)		<>
Board Dimensions (Single Lane)		510x590mm (Std)	750x550mm (Std) 1,200x550mm (Opt)	510x590mm Consult us for other sizes
Board Dimensions (Dual Lane)		510x300mm (Std) 650x300mm (Opt)	750x260mm (Std) 1,200x260mm (Opt)	510x300mm Consult us for other sizes
Placement Accuracy	Chip	±25 microns Cpk ≥1.0	±25 microns Cpk ≥1.0	±30 microns Cpk ≥1.0
	QFP	±30 microns Cpk ≥1.0	±30 microns Cpk ≥1.0	±30 microns Cpk ≥1.0
Throughput	Ideal	Up to 84,000 cph	Up to 77,000 cph	Up to 36,000 cph
	IPC9850	63,300 cph (1608C)	59,200 cph (1608C)	8,500 cph (QFP 208)
Component Range	Min	03015mm microchip	03015mm microchip	0402mm (01005)
	Max	100x90mm (3.9x3.5")	150x25mm (6x1") & 120x90mm (4.7x3.5")	150x25mm (6x1") & 120x90mm (4.7x3.5")
	Height	40mm (1.57")	40mm (1.57")	40mm (1.57")
Feeder Capacity	Reels	68	120	52
	Trays	20	40	40
Facilities	Electric	Voltage: 3 Phase AC 200/220 ±10V; AC 380 400 420 480V ±20V Frequency: 50/60 Hz; Capacity: 2.5 kVa; Peak Current 30-38 A (AC 200 V)		
	Pneumatic	0.5-0.8 MPa; 100 L/min (ANR)	0.5-0.8 MPa; 200 L/min (ANR)	0.5-0.8 MPa; 200 L/min (ANR)
	Mass	1,900kg (Body + 2 Carts)	3,010kg (Body + 4 Carts)	3,050kg (Body + 2 Towers)
	Dimension	W 832 x L 2,652 x H 1,444mm	W 1,280 x L 2,465 x H 1,444mm	W 1,300 x L 2,798 x H 1,444mm

total solutions for  
**any mix**  
**any volume®**

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