

# Specifications

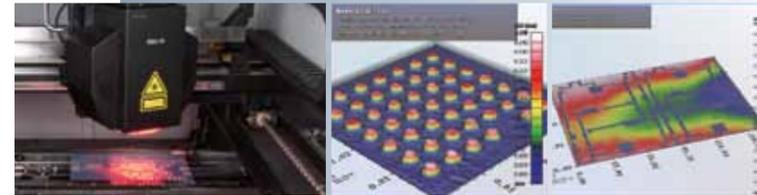
SPI Series		HS60 Series		HS70 Series		HS70DH
3D Camera	Sensor Head	RSC5	(Supreme) RSC6-HS	RSC6-HS	RSC6-HR	RSC6-HSx2
	Scan Speed(sq.cm/sec)	60	100	100	80	100
	X, Y Resolution(μm)	18x18	13x13	13x13	10x10	13x13
	Lateral Length(mm)	23	32	32	22	32
	Height Resolution(μm)	0.2	0.2	0.2	0.1	0.2
Performance	Repeatability	3 Sigma < 1μm/Height 3 Sigma < 1%/Volume 3 Sigma < 1%/Area	3 Sigma < 1μm/Height 3 Sigma < 1%/Volume 3 Sigma < 1%/Area	3 Sigma < 1μm/Height 3 Sigma < 1%/Volume 3 Sigma < 1%/Area	3 Sigma < 1μm/Height 3 Sigma < 1%/Volume 3 Sigma < 1%/Area	3 Sigma < 1μm/Height 3 Sigma < 1%/Volume 3 Sigma < 1%/Area
	Accuracy(μm/Height)	2	2	2	2	2
	Gage R&R	<< 10% / 0402-1608 chip	<< 10% / 0402-1608 chip	<< 10% / 0402-1608 chip	<< 10% / 0402-1608 chip	<< 10% / 0402-1608 chip
Measurement	Min. Solder Paste Size(μm)	200x200	150x150	150x150	100x100	150x150
	Max. Solder Paste Size(mm)	20x20	20x20	20x20	20x20	20x20
	Min. Solder Paste Pitch(μm)	100	100	100	80μm	100
	Max. Solder Paste Height(μm)	1000μm				
	Measurement Item	Height,Area,Volume,Offset,Bridge,Shape,Warpage,PCB shrink	Height,Area,Volume,Offset,Bridge,Shape,Warpage,PCB shrink	Height,Area,Volume,Offset,Bridge,Shape,Warpage,PCB shrink	Height,Area,Volume,Offset,Bridge,Shape,Warpage,PCB shrink	Height,Area,Volume,Offset,Bridge,Shape,Warpage,PCB shrink
PCB Warpage	±5mm(2%)					
Board Dimension	Minimum Size (LxW)	HS60, 60L:50x50 HS60D:80x80 HS60XL,60XXL:100x100	HS60, 60L Supreme:50x50 HS60D Plus:80x80 HS60XL Supreme:100x100	HS70:80x80 HS70L,HS70XL:100x100	80x80	80x80
	Maximum Size (LxW)	HS60:360x260 HS60L:520x510 HS60XL:700x510 HS60XXL:880x510 HS60D:340x315	HS60 Supreme:340x260 HS60L Supreme:500x510 HS60XL Supreme:685x510 HS60D Plus:350x315	HS70:420x350 HS70L:590x610 HS70XL:950x670	HS70D:340x315 HS70DL:590x610	350x250
	Thickness	0.4mm to 4mm				
	TOP/Bottom Clearance (mm/mm)	HS60:25/25 HS60L,60XL,60XXL:18/25 HS60D:4/23	HS60Supreme:25/25 HS60L,60XL,60XXLSupreme:25/25 HS60D Plus:4/23	4/23	4/23	4/20
	TOP/Bottom Edge Clearance (mm/mm)	HS60,60L,60XL:2.5/3.5 HS60XXL:3.5/4.5 HS60D:2.5/3.5	HS60,60L,60XLSupreme:2.5/3.5 HS60D Plus:2.5/3.5	HS70,70L:2.5/3.5 HS70XL:3.5/5.0	HS70D,70DL:2.5/3.5	2.5/4.0
	PCB Weight(kg)	HS60:2 HS60L,60XL,60XXL:4 HS60D:1.5		HS70:2 HS70L,70XL:10 HS70D:1.5 HS70DL:3		1.5
	CPU	Intel i3-2100(3.1G)	Intel i3-2100(3.1G)	Intel i3-2100(3.1G)	Intel i3-2100(3.1G)	Intel i3-2100(3.1G)
Computer & Console	Memory(GB)	HS60, HS60L:8 HS60XL, HS60XXL:16	8	HS70:8 HS70L:16 HS70XL:48	16	8
	Monitor	20" Wide				
	Operating System	MS-Windows XP Professional 64bit / Window 7				
Utility	Power(kw)	HS60:1.5 HS60L, HS60XL, HS60XXL:1.8	2.3	HS70:1.7 HS70L:1.8 HS70XL:2.0	2.3	3.5
	Air	5 Kg/sq.cm				
System Dimension	Dimension (WxDxH)mm	HS60:900x1000x1480 HS60L:1060x1285x1480 HS60XL:1240x1285x1480 HS60XXL:1420x1285x1480 HS60D:1180x1395x1480	HS60 Supreme:900x1000x1480 HS60L Supreme:1060x1285x1480 HS60XL Supreme:1240x1285x1480 HS60D Plus:1180x1435x480	HS70:970x1195x1535 HS70L:1170x1335x1535 HS70XL:1530x1415x1535	HS70D 1 : 920x1415x1510 HS70D 3 : 1180x1475x1510	1296x1980x1510
	Weight(kg)	HS60:750 HS60L, 60XL, 60XXL:1000 HS60D:900	HS60 Supreme:750 HS60L, 60XL, 60XXL Supreme:1000 HS60D Plus:900	HS70:800 HS70L:950 HS70XL:1100	900	1000
Options	Height Gauge(Calibration Jig),1D 2D Barcode System,Closed Loop System					



## Parmi Corporate Headquarters

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July, 2012



## 3D SOLDER PASTE INSPECTION and PROCESS CONTROL SYSTEMS

2012 PARMI Products



# PARMI

Pattern Recognition and Machine Intelligence

# Welcome to PARMi

## Global Leader in Solder Paste Inspection and Process Control Systems

Thank you for your interest in Parni and our products. We take pride in providing leading edge solutions and adding value to our customers business. Whether we're creating value through knowledge sharing, enhancing efficiency, increasing profitability or making you more competitive in your marketplace you can depend upon Parni to be a customer driven, problem solving, value added partner.

From bench top, single lane, dual lane and large board models we can assist in any application. Our innovative technology and industry leading cycle times set us apart as a world leader.

Thank you for your interest, we look forward to learning more about how we may serve you.



### SPI HS60™ Series



HS60

HS60 Supreme

HS60L Supreme

### SPI HS70™ Series



SPI HS70™

SPI HS70L™



### Dual Lane Series



SPI HS60D™

SPI HS70D™

# New Advanced Technology in all Platforms

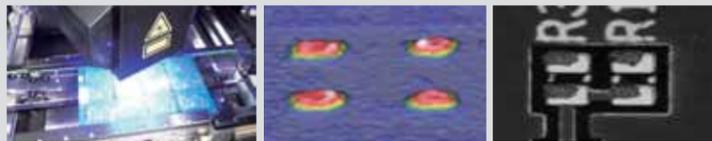
## Exclusive "Optical triangulation" Technology

Parmi systems utilize dual laser and high resolution color camera technology to accurately calculate shape, height, area, volume, warpage and off set. Parmi technology measures both bare board and material deposits and is compatible with all material colors and finishes. The systems deliver virtually zero false call and zero bad board escape rates maximizing up-time, increasing profitability and ensuring a quick return on investment.



## Color Camera

Color images provide easy and fast analysis of print quality and defects.



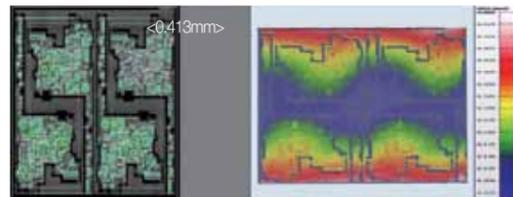
## Innovative Real Time Warpage Compensation

The system identifies board warpage and exclusive Z Axis motion control system maintains optimal depth of focus measuring warpage up to +/- 5 mm



## PCB Warpage Measurement

Innovative whole board scanning uniquely delivers precise measurement of both the board surface and solder deposits



## PCB Stretch and Shrink Management

Managed by comparing board image, Gerber Data, fiducial coordinates and printed material offsets are identified and communicated to upstream and downstream processes supporting closed loop control.



## SPI HS60 Supreme™

## SPI HS70™

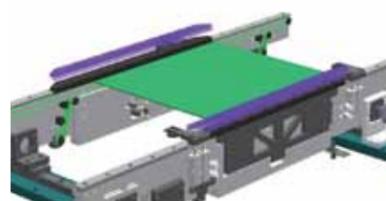
## High Precision Linear Motor Gantry Drive

The scanning head's linear motor drive coupled with secure PCB clamping delivers the industry's most stable, vibration free and accurate platform.



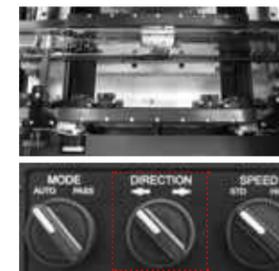
## HS 70 PCB Clamping

Downward clamping of the PCB ensures stationary positioning during inspection ensuring high accuracy measurement.



## Conveyor

Conveyor width and direction easily adapt to changes in processing. Triple track and dual lane conveyors are optional to maximize throughput.



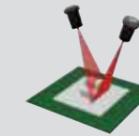
## Ease of Access and Rugged Construction

Roll out drawers provide quick and unobstructed access to operating systems. Systems are CE certified and built with the highest quality standards

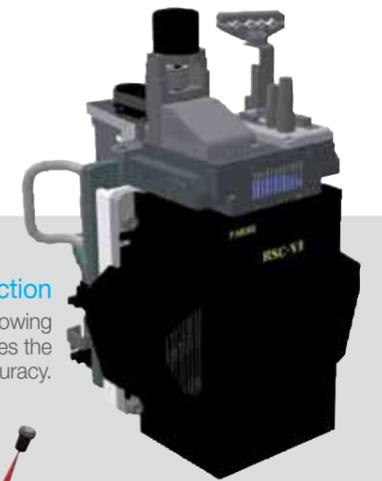


## Dual Laser Projection

Dual laser projection eliminates all shadowing and 10 x 10 um resolution produces the highest level of measurement accuracy.

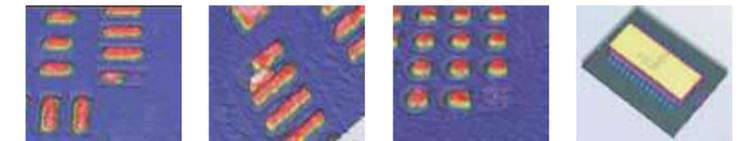


RSC VI sensor Head - Real Time Z-axis included



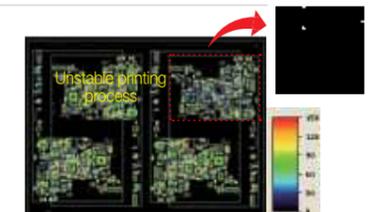
## 100% Material Compatibility

Unlike other brands Parmi's inspection technology is unaffected by varying materials, surface conditions or colors. The system profiles the board to generate accurate 3D shapes far superior to other brands and technologies.



## Intuitive Monitoring of the Printing Process

Multi color 3D graphical images provide easy analysis. Deposits are colored according to measured height, volume, offset, sigma and defect frequency.



## User Defined Window Locations

User interface windows are easily arranged, sized and saved per user preference. Multi level accessibility settings ensure program and process integrity.



## Defect Analysis

On-board tools assist engineers in root cause trend analysis. Inspection results are displayed in several formats including yield trending, defect type, defect frequency, R and X bar, Sigma, CP and CPK. Reports and data are easily generated and exported in many popular formats.



# SPI HS70™

The Industry's Flagship  
 Parmi sets the bar with 100cm<sup>2</sup>/sec inspection speed. The RSC-VI sensor head delivers the fastest industry inspection times providing maximum throughput and competitive advantage.



## PCB Size

The HS-70 system is available in three models and accommodates boards from 80 mm (3") x 80 mm (3") to 950 mm (37.4") x 670 mm (26.3")

# Dual Lane Performance

Dual Lane configuration offers the ultimate in throughput and compatibility with all placement supplier configurations.



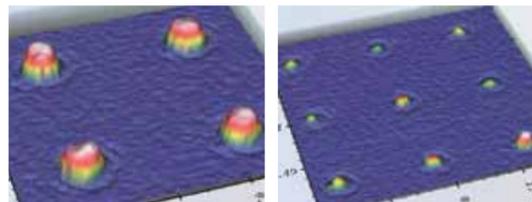
## PCB Size

HS 70 D : X 340 mm (13.3") x Y 315 mm (12.4")  
 HS 60 D : Two models available X 340 mm (13.38") x Y 315 mm (12.4") with rail 1 and 4 max size 686 mm (27")  
 X 250 mm (9.84") x Y 280 mm (11") with rail 1 and 4 max size 610 mm (24")



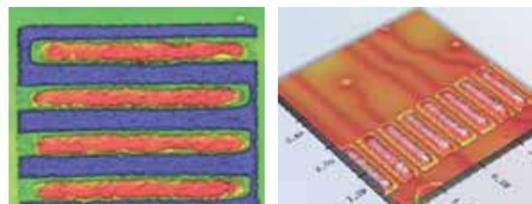
## RSC-VI

13x13µm resolution achieves the industry's highest throughput without loss of measuring accuracy.



Ø0.2

Ø0.15



QFP1

QFP2

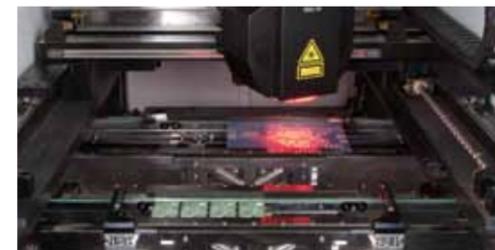
## Highest Measurement Reliability and Highest Speed

- 3D data is acquired every 10 x 10µm providing 4x more data than 20x20µm
- Fastest industry Inspection speed : 100cm<sup>2</sup>/sec @ 13x13µm
- RSC-VI High Resolution : 80cm<sup>2</sup>/sec @ 10x10µm
- RSC-VI High Speed : 100cm<sup>2</sup>/sec @ 13x13µm



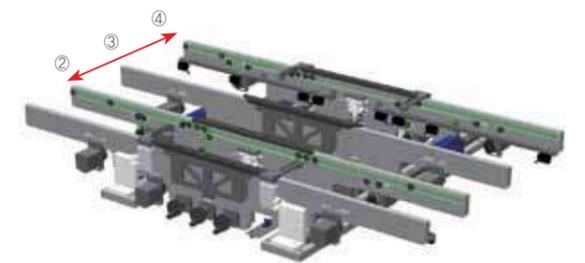
## Inspection Head Stability and Longevity

Linear motor drive provides the industry's most stable, vibration-free inspection platform for a lasting return on investment.



## Dual Lane Conveyor

Dual Lane conveyor provides adjustable rails 2, 3 and 4 compatible with all placement brands



## Multi board Processing and Multi Lane Viewing

Different boards may be processed on the front and rear conveyors. The user may view single or dual board inspection results simultaneously.



## Robust design and Easy Access

All Parmi products are engineered to provide many years of dependable service and, unobstructed access.



# SPI HS60 Supreme™

The HS60 Supreme incorporates the RSC-VI sensor head delivering 100cm<sup>2</sup>/sec inspection performance and increased stabilization.



## Board Size

HS60 Supreme : X 340 mm (13.4") x Y 260 mm (10.23")  
 HS60 L : X 520 mm (20.47") x Y 510 mm (20")  
 HS 60 XL : X 700 mm (27.55") x Y 510 mm (20")

Fastest Inspection speed : 100cm<sup>2</sup>/sec @ 13x13µmRSC-VI

# Portable Solutions

These high performance systems represent the next generation of bench top solutions. Suitable for multiple lines, low volume and lab environments they offer similar features and benefits to Parmi's in-line models.



## SPI 50T SPI 2500

max pcb 330mm x 250mm	100cm <sup>2</sup> per second @ 13x13µm
max pcb 520mm x 400mm	30 profiles per second @ 10µm spatial resolution



## Robust Design and Easy Access

All Parmi models are CE certified and engineered to last. When you choose Parmi you've chosen the very best.

## Inspection Head Stability and Longevity

Linear motor drive provides the industry's most stable, vibration-free inspection platform for a lasting return on investment.



## Ease of Use

The HS 60 is very user friendly, simple to program and quick to set-up. Graphical windows make operation easy and intuitive.



## SPI 50T Fully Automatic Bench Top

- 100% PCB inspection with RSC-VI Head and 100cm<sup>2</sup> per second @ 13 x 13 um performance
- Motorized X-Y linear servo motor for silent, vibration free, accurate inspection.
- Inspects height, area, volume, offset, bridging with 3D color modeling, SPC and off line programming
- Inspection data includes pad, zone, area, whole board
- User friendly simple PCB loading and unloading with one-touch switch



## SPI 50T Fully Automatic Bench Top

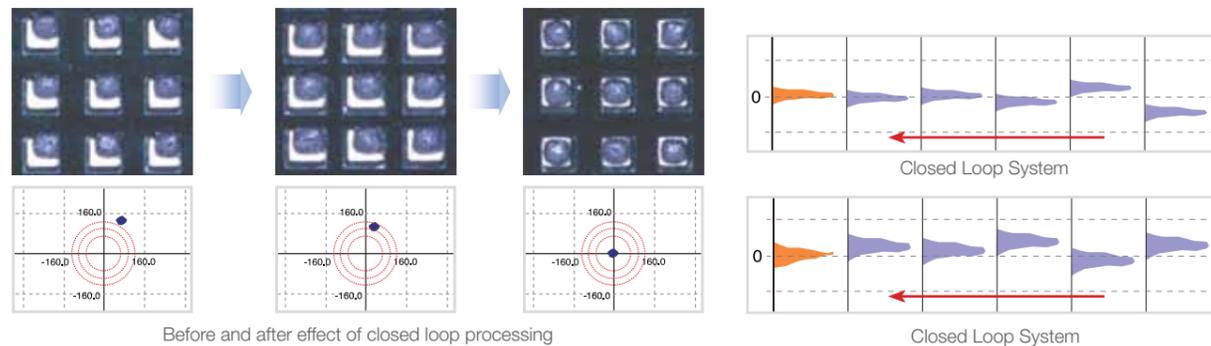
- Optical laser triangulation 30 profiles per second @ 10 um spatial resolution
- 6 mm x 6 mm window
- Inspects height, area, and volume with 3D modeling
- User Friendly with graphical user interface, on board SPC

# PARMI Intelligent Systems



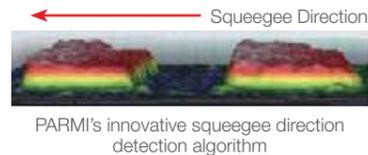
## Closed Loop Feedback

Parmi partners with industry leading suppliers to provide state of the art closed loop communication and process management. Linking to upstream and downstream equipment the systems work together, seamlessly communicating and using data. This enabling technology provides automatic adjustments to process equipment to continually improve operational performance.



## Closed loop upstream communication with screen

printers enables automatic off-set and initiation of stencil wiping routines to continually improve print performance and reduce rework.



## Closed loop downstream communication with placement

machines enables automatic offset to improve placement accuracy and yields.



## Statistical process Control

PARMI's feature packed SPCworks software provides many useful tools for fast analysis of the printing process. Both Statistical and Attribute SPC are provided, monitoring and control of your Parmi machines is easily accomplished locally and remotely.

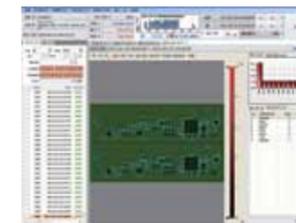
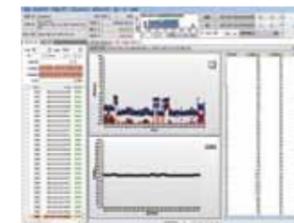
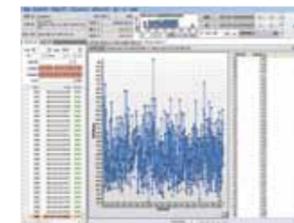
### Statistical SPC

Includes average (X-bar), range Chart, standard deviation, moving range and numeric display of process capability analysis



### Attribute SPC

Includes analysis tool for defect numbers, location, type, concentration analysis, C chart, NP Chart, DPMO, defect position analysis chart, histogram for height, volume, offset, warpage, stretch and shrink, panel yield, chart by panel and model



## Remote Monitoring

RMC Works is Parmi's proprietary software to enable remote monitoring, management and control of single or multiple SPI systems. Increased visibility and performance awareness, convenience and reduced labor time are just a few of the benefits realized with it's use.



## Server Communications

Customers remote server manages board program and components database.

New programs and changes to component tolerances are easily downloaded to individual machines.

Parmi systems are programmable off-line by Gerber and CAD input.

