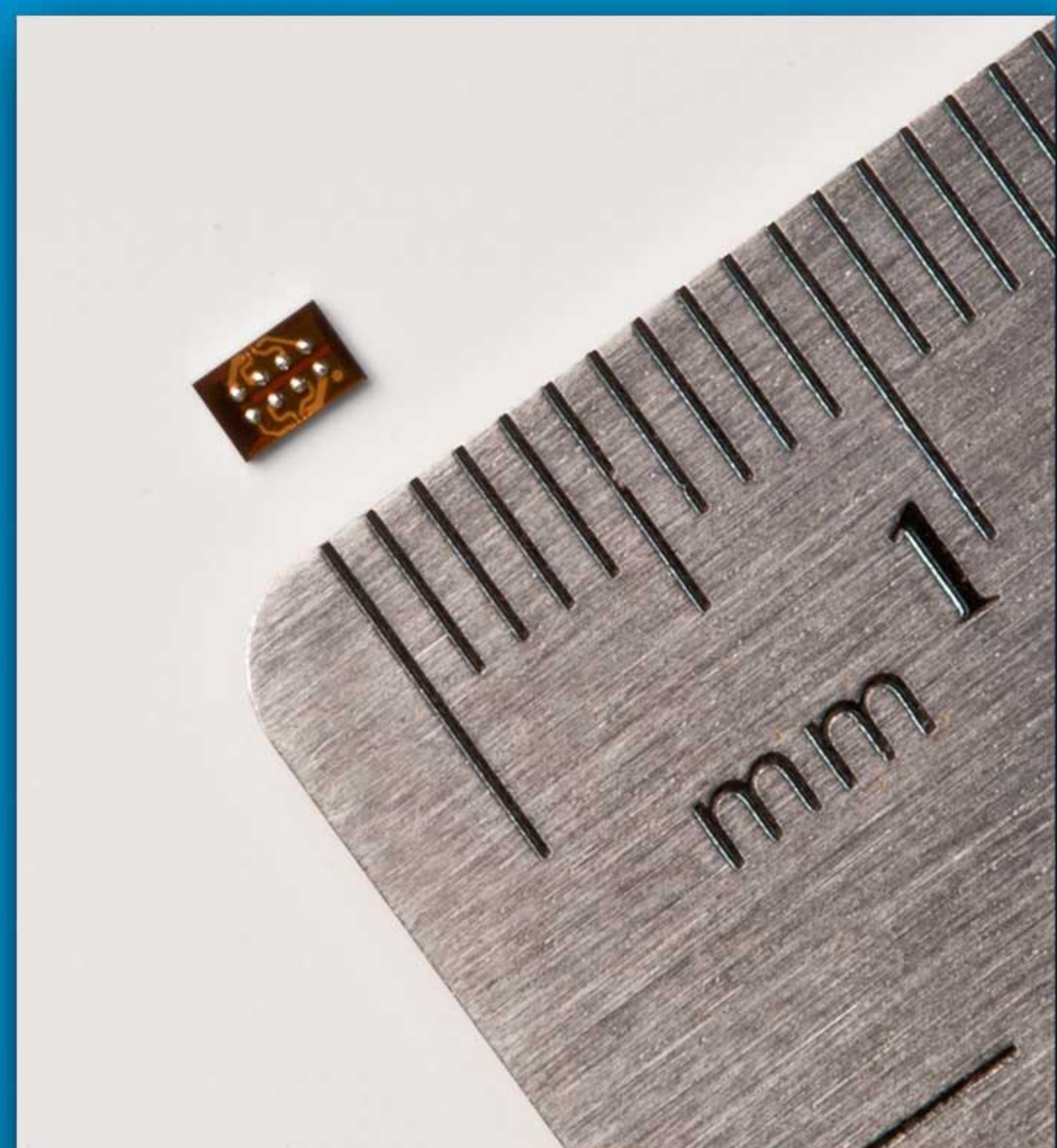




### Re-Inventing Automated Device Programming

The 3800-MK2 is a fine-pitch automated device programmer reinvented for superior quality and capability. With 8th Generation universal device support the 3800-MK2 delivers the world's fastest programming performance. Now featuring upward and downward vision for improved setup and placement accuracy, the machine also offers

enhanced ergonomics and improved input/output configurability to maximize uptime. The 3800-MK2 is capable of producing millions of devices per year, supporting the widest range of programmable devices to deliver the lowest programming cost per unit.

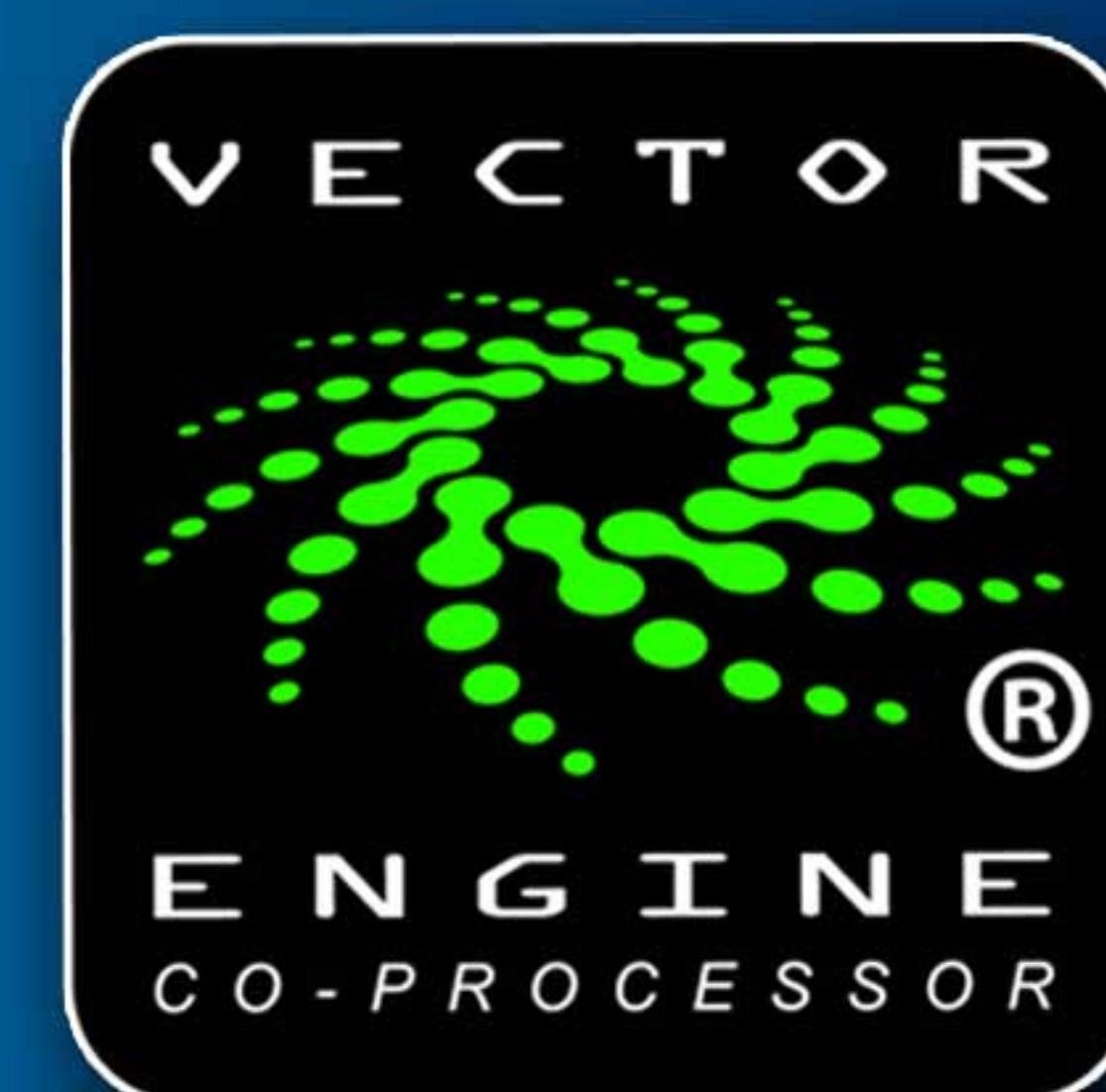


### Intelligently Designed to Handle Whatever Comes Next

The 3800-MK2 programs all devices types including microcontrollers, managed NAND, flash memory, E/EPROM, PLDs and more, including device densities up to an 8 Eb theoretical limit. It also supports a wide range of packages from the largest QFP to the smallest CSP. Applications for Very Small Package (VSP) devices are accelerating. The system can process the smallest programmable VSP devices available today and is engineered to support future devices as small as 1mm x 0.5mm (0402). The 3800-MK2 can handle your next critical project.

### Incomparable - Vector Engine Speed with BitBlast

Like all 8th Generation programmers, BPM's Vector Engine Co-Processor<sup>®</sup> technology with BitBlast is capable of achieving an amazing 24Gbits per second peak operating rate. Using this proprietary technology, waveforms are accelerated during the programming cycle. Faster speeds are achieved through synchronous operations that eliminate the dead times, so the device under test no longer waits for the programmer. The result is programming near the theoretical limits of the silicon design — the faster the device, the faster the device is programmed.

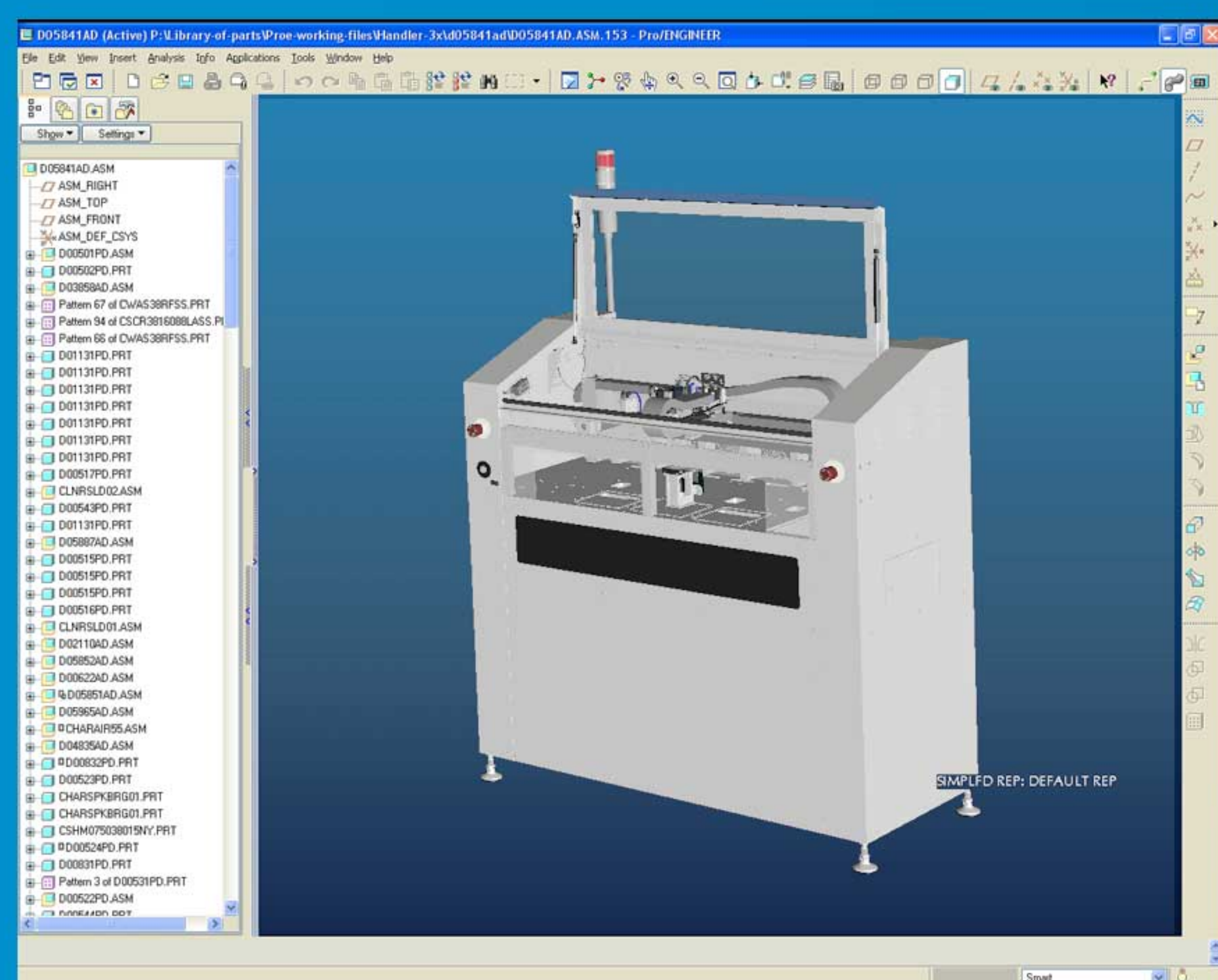
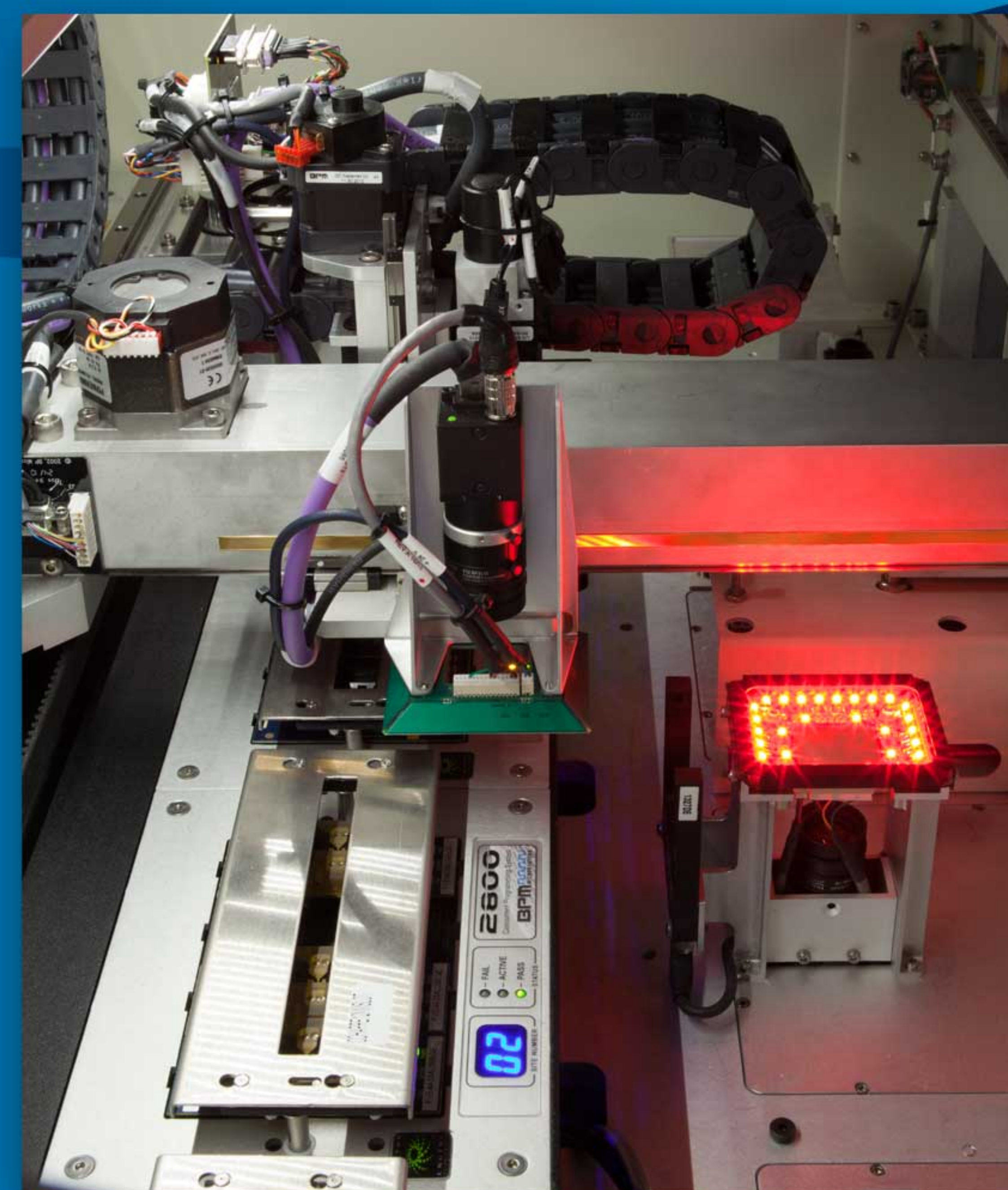






## Impressive Balance of Technology, Functionality, Productivity

Integrated into the 3800-MK2 is a refined vision system for accurate device alignment, placement and fast setup. The upward vision camera for device alignment features BPM's exclusive light ring with bright and dark field lighting to enhance device imagery. And, component images can be saved for quality traceability and analysis. The downward vision camera provides precise pick and place setup with ease, delivers dynamic placement recognition and creates a path for true automated optical inspection. The advanced vision system can be utilized on-demand, to maximize productivity while maintaining accuracy and repeatability while achieving the highest possible quality.



## I/O Options, Ergonomics and ESD Protection

The 3800-MK2 platform features improved ergonomics for easy access to the programming sites and ESD dissipative surfaces to protect against electrostatic damage. The system also provides flexible options for input and output media with choices of tape, tray and tube, including a side-mount tape output option. This highly configurable design allows the machine to utilize all input/output media on a small footprint, thereby reducing changeover time and optimizing productivity.

## Incredibly Low Programming Cost per Device

BPM Microsystems' socket cards with a receptacle socket option offer the most cost-effective and efficient programming solution in the industry. Individual socket cards can be fully utilized and replaced without dramatically affecting programming capacity. The fault-tolerant socket card design increases your manufacturing up-time, produces higher first-pass yield, and saves replacement costs by as much as 75 percent compared to gang adapters. By combining unmatched programming performance and system uptime with low socket consumable costs the result is very low programming cost per device.







## System Features

### Machine Features

- Universal support for the latest programmable device architectures (MCUs, OneNAND, eMMC, iNAND, moviNAND, MLC, SLC, and more)
- Concurrent fault tolerant design programs up to 16 devices in parallel
- Incredibly fast 8th Gen programming technology, up to 24Gb/second peak rate
- Includes 16 GB of onboard memory per site and 64-bit architecture, breaking past the 4 GB data density barrier
- Modular sites share common hardware and software, resulting in process consistency between 8th Gen automated and manual programmer models
- Downward vision camera for pick/place setup, pocket recognition and AOI functionality
- Upward vision camera for precise alignment and placement
- On demand part alignment
- Save part images for quality and traceability
- Dual light rings for any combination of bright field and dark field lighting
- Nozzle Run-out correction
- Supports a wide range of packages including very small packages such as MSOP8, TSOC6, SOT23, MLP, WLBGA, CSP and more
- Handle devices as small as 0402 (1005), 1mm x 0.5mm
- Production throughput up to 1100 DPH is ideal for high volume and high mix
- Quick setup and changeover with automatic self-teaching
- Optional peripherals: Tape I/O, Tray Stacker, Tray Shuttle, Tube I/O, Laser Marker
- Non-stop operation with dual tray shuttles
- ESD dissipative surfaces
- Small footprint with pallet jack mobility

### Socket Card Features

- Utilizes 1 to 16 socket cards
- Compatible with Flashstream socket cards
- Automated and manual 8th Gen models share the same socket cards
- Replace only worn or damaged socket with receptacle-base socket option
- Active, Pass and Fail indicators per device
- Support for thousands of devices and a wide variety of packages
- Standard, high performance and high insertion count sockets available

# 3800-MK2

## Automated Device Programming System



### Software Features

- Custom and manufacturer-approved NAND bad block handling methods available; bad block options and schemes included
- Bit Error Rate Tolerance
- Serialization support on all sockets
- JobMaster™ – production automation tool to create, save, protect job files
- Share JobMaster™ files between machines and geographic locations
- BP job files common on both manual and automated machines
- Operator and Supervisor modes
- File encryption for IP protection
- Supports third party label printers
- Automated job event notifications via email
- View important system events graphically with Log Visualization
- Black Box Log to review detailed job events
- Application Programming Interface option (API) for job Control and Monitor
- Integrate programming with the shop floor process control
- Simple, Complex Serialization and Device Driven Serialization
- Up to eight major software releases per year for continuous improvement
- Daily algorithm additions via beta software release
- Guaranteed release dates for new algorithm additions
- BPWin Operator Manual embedded in the software
- Smart device search to confirm algorithm and socket solution
- Job Summary for traceability and performance metrics





## System Specifications

### Pick & Place System

Handler Throughput:	up to 1100DPH
Component Handling Range:	0402 to 240-pin QFP
Placement Force:	60-600 grams positional control
Machine Dimensions:	length 127cm, width 61cm, height 137cm
Machine Weight:	182kg
Shipping Specifications:	length 162cm, width 96cm, height 177cm; weight 295kg
Safety Standard:	CE compliant
Self-test:	power supplies, CPU, memory, X, Y, Z, theta motion systems, nozzle run out and height

### Positioning System

X-Y Drive System:	high-performance stepper motor driven precision belt
X-Y Encoder Type:	linear optical scale
X-Y Axis Resolution:	0.0050mm
X-Y Axis Maximum Velocity:	76cm/s
Z Drive System:	high-performance stepper motor driven lead screw
Theta Drive System:	precision stepper motor-driven direct drive assembly
Theta Axis Resolution:	0.014°
Theta Axis Repeatability:	+/- 0.5mm
Placement Accuracy:	90µ@ 4 sigma, 67µ@ 3 sigma

### Vision System

Type:	dual CCD, Upward and Downward
Light Ring:	dual light rings, configurable, bright and dark field lighting
Image Capture Rate:	30micro seconds
Communication:	GigE compliant

### System Requirements

Air Pressure:	80psi (5.56 bars)
Air Flow:	2.0scfm (50.1L/min)
Operational Temperature:	55° to 90° F (13° to 32° C)
Relative Humidity:	30-80%
Minimum Floor Space:	length 183cm x width 107cm
Input Line Voltage:	100-130/200-260VAC
Input Line Frequency:	50/60 Hz
Power Consumption:	1KVA

### Programming Hardware

Architecture:	Concurrent Programming System with Vector Engine Co-Processor
Programming Sites:	2 to 4 sites, 1 to 4 sockets per site
Calibration:	annual, may be performed on site with included socket card
Diagnostics:	pin continuity test, memory, pin drivers, power supply, communications, calibration, timing, ADC, DAC, interconnects
Memory:	16GB per site, standard
Communications:	USB 2.0
Data Pattern Broadcast:	31 Mb/s 20ns cycle
Firmware Updates:	Software automatically performs firmware download

### Pin Drivers

Quantity:	240-pins standard, per site
Vpp Range:	0-13V Slew rate 2V/µs
Ipp Range:	0-50mA continuous
Vcc Range:	0-7V Slew rate 3V/µs
Icc Range:	0-450mA
Rise Time:	4ns
Protection:	overcurrent shutdown, power failure shutdown
Independence:	pin drivers and waveform generators are fully independent and concurrent on each site

### Software

Required:	BPWin
File Type:	binary, Intel, Motorola, RAM, straight hex, hex-space, Tekhex, Extended Tekhex, ASCII, hex, OMF, LOF, MER and others
Device Processes:	ID check, blank check, continuity, auto start, compare, read, erase, program, verify, multi-pass verify, test, checksum, secure, device configure, auto-range, options and more
Operating Systems:	Windows XP Professional, Windows 7 32bit
Network Interface:	Gigabit Ethernet