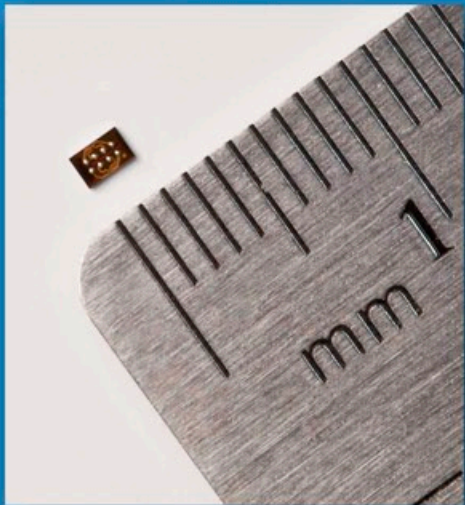




### Re-Inventing Automated Device Programming

The 3800MK2 is a fine-pitch automated device programmer reinvented for superior quality and capability. With 8th Generation universal device support the 3800MK2 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 3800MK2 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 3800MK2 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 3800MK2 can handle your next critical project.

### Incomparable - Vector Engine Speed with BitBlast

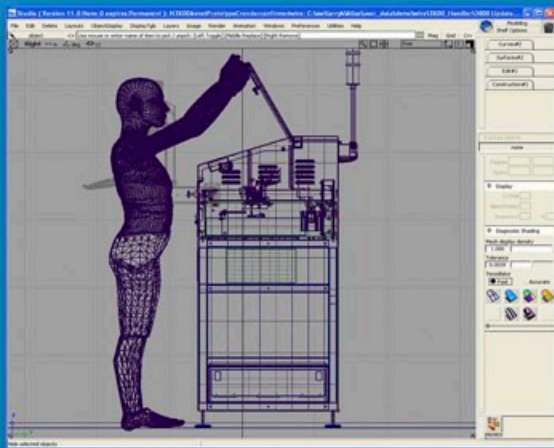
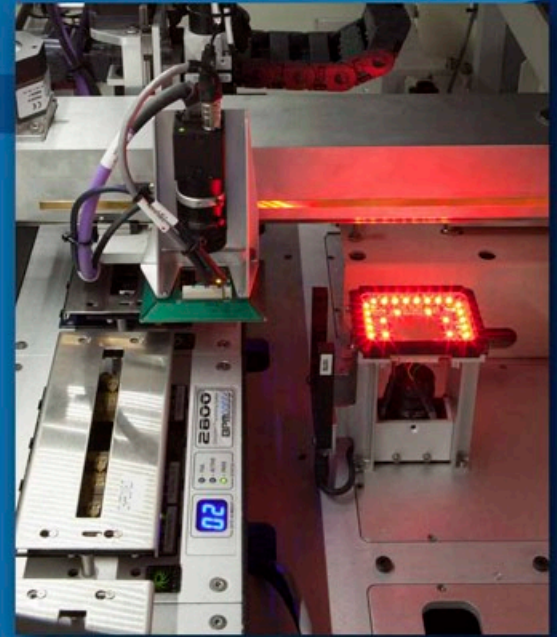
8th Generation programming technology includes BPM's exclusive Vector Engine Co-Processor® technology with BitBlast, capable of achieving an amazing 24Gbits per second peak rate. Using this proprietary technology, waveforms are accelerated during the programming cycle. Faster speeds are achieved through 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 3800MK2 is an impressive dual CCD vision system engineered to make job setup fast and easy and to deliver accurate and repeatable placement. The downward vision camera provides easy and precise pick and place setup, pocket recognition, and automated "z-teach" while establishing a foundation for true automated optical inspection. The upward vision camera for device alignment features BPM's exclusive light ring with bright and dark field lighting to enhance device imagery for all package types. Component images can be saved for quality traceability and analysis. The advanced vision system maintains accuracy and repeatability while maximizing productivity and quality.



### I/O Options, Ergonomics and ESD Protection

The 3800MK2 platform features improved ergonomics for easy access to the programming sites and ESD dissipative surfaces to protect against electrostatic damage. The system 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 sockets replaced as needed to maximize 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 consumable costs, the result is very low programming cost per device."





## System 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, Vector Engine Co-Processor up to 24Gb/second peak rate
- Includes 32GB of onboard memory per site standard and upgradable to 64GB
- Modular sites share common hardware and software for process consistency between automated and manual 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 - 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, Labeler
- Non-stop operation with dual tray shuttles
- ESD dissipative surfaces
- Small footprint with pallet jack mobility

- Utilizes 1 to 16 socket cards
- Socket cards compatible with 8th Gen and Flashstream® model automated and manual programmers
- Replace only worn or damaged socket with receptacle-base socket option
- Active, Pass and Fail indicators per device
- Support for thousands of devices and hundreds of packages
- Standard, high performance and high-insertion count sockets available

# 3800MK2

## 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) minimum  
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: 8th Gen 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  
Diagnostics: pin continuity test, memory, pin drivers, power supply, communications, calibration, timing, ADC, DAC, interconnects  
Memory: 32GB per site, upgradable to 64GB  
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  
Ipp Range: 0-50mA continuous  
Vcc Range: 0-7V  
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