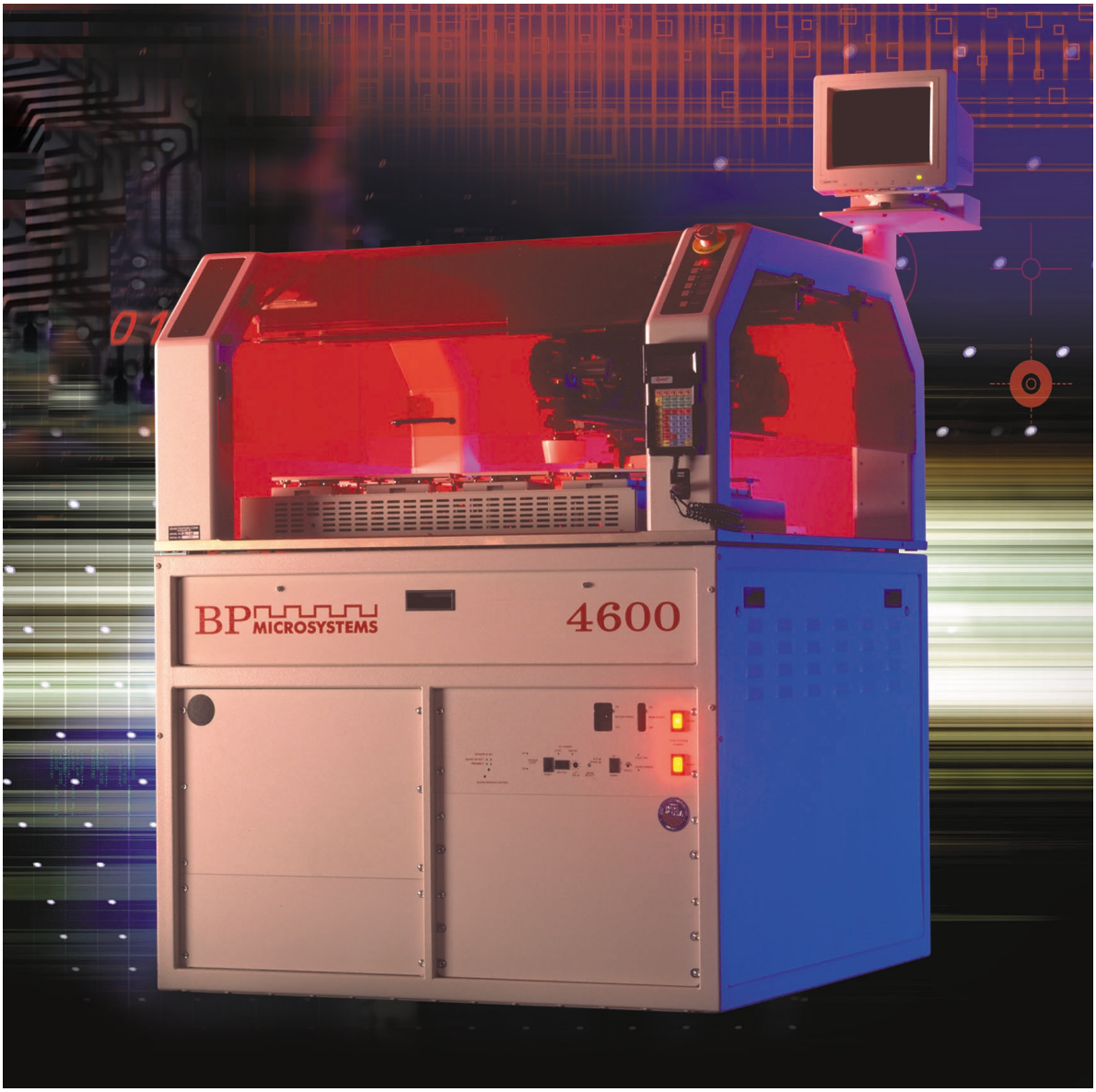
4600 Automated Programming System



- The fastest programming times and unrivaled throughput means lower cost-per-device
- Ideal for the highest density devices
- Programs at 0.34s/Mb with a maximum 1200 DPH with vision centering
- Very low voltage support down to 1.5V
- On-the-fly vision centering without reduction in throughput
- Most successful line of fine-pitch, automated programming systems
- Variety of input/output and marking options with tubes, trays, or tape and laser or label
- Handles all package types from DIP to µBGA
- Programs Flash memories, FPGAs, antifuse FPGA, PLDs, and microcontrollers

BP MICROSYSTEMS

Faster Automated Programming

Combine the most successful fine-pitch, automated platform available (the 4000 series) and the industry's fastest programming technology (BP Micro's 6th Gen Technology) and you get the 4600. It is the fastest automated programmer available—at .034s/Mb*. Then combine support for virtually every device from 1.5V to 5V (Vdd) and you have the most versatile and flexible automated programmer available.

The 4600 requires just 11 sockets and still beats the competition because of its unparalleled programming times.

The Best Device Support

Along with the speed comes the versatility to program the most devices, too—including the latest flash memories, MCUs, PLDs, FPGAs and antifuse FPGAs. No other automated programmer supports more devices. The 4600 supports over 15,100 devices and BP Micro updates that support with new devices every six weeks.

The Best Package Support

Not only does the 4600 support the most device types, it also supports more device packages than any other automated programmer. So if you're programming the smallest µBGAs and Chip Scale Packages or even the largest DIP and QFPs, BP Micro has the support for you. In fact, BP Micro has over 250 automated socket modules available today.

Changover is easy, too. For example, changing from flash to MCUs or µBGAs to DIP only requires replacing the socket modules. Other programmers may require you to replace whole programming sites.

Accelerated Socket Modules for the Fastest Programming

To gain the highest programming speeds, the 4600 uses advanced, accelerated socket modules (the FX socket modules). These FX socket modules allow you to program at the fastest speeds in the industry. Like all BP universal programmers, the 4600 also supports the full range of BP Micro's socket modules.

More Accurate, More Cost Effective and Easier-to-Use

The 4600 is proven technology. The 4000 series—on which the 4600 is based—is the industry workhorse and is well known for the highest reliability and accuracy. Actually, we've sold more fine-pitch automated programmers than all our competitors combined. That's over 230 BP Micro fine-pitch automated systems in the field, all of which are performing as reliably and accurately as they did the day they were installed.

Continuous, on-the-fly vision centering and closed-loop positioning mean that your devices will be placed as accurately five years from now as they are today. And remember, that's without a reduction in throughput.

** AMD AM29DL640D, Program & Verify*

The 4600 comes with Jobmaster™ software that makes setting up and running jobs as easy as choosing a file. It allows the 4600 to be set up in operator mode so users can program devices but does not allow the operator to change the job specifications without a password. The 4600 also comes with features like serialization and checksum verification.

Unparalleled Support

BP has set the standard for support, from the first toll-free technical support telephone number to being the first to offer 24/7 automated programmer support. BP Micro stands behind every programmer with unparalleled support in 57 countries around the world that includes training, service and upgrades.

Variety of input/output and marking options

The 4600 is available with the full range of input and output options including tube, tray and tape & reel. Also available are automated tray and tube stackers, both designed to keep your 4600 running at the highest speeds with little or no changeover or operator intervention required. BP Micro also offers the One-Stop System which marks (label or laser), inspects and tapes devices without effecting the programming throughput of the 4600.

Setting the Standard in Device Programming

For the past 15 years, BP Micro has been the leader in device programming technology. From the first Concurrent Programming System® (2100), the first automated programmer with vision centering (4100), to the first In-Line Programming and Placement System (6500), BP Micro has delivered the technology that others copy. The 4600 is the most versatile and flexible, automated programmer available and is designed to get the job done easily, accurately and cost-effectively.

By introducing the 4600, BP Micro continues to deliver on their promise of providing customers with the best programming solutions today and tomorrow. That is why any 4000 series automated programmer can easily be upgraded to the 4600 without losing existing device support. Since investment in BP Micro automated technology is also an investment in the future, the 4600 can also be upgraded to the next generation programming technology.

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Specifications

PICK AND PLACE SYSTEM

Maximum Programming Rate: 1200 DPH
Component Processing Range: 8-pin SOIC to 208-pin QFP
Laser Alignment: component range - 8-pin SOIC to 160-pin AFP, minimum pitch 0.025" (.635mm)
Upward Vision Camera: optional VU-6, minimum pitch 0.0197"
Placement Accuracy: ±0.0024" (0.06mm)
Placement Repeatability: ± 0.0012" (0.03mm)
Placement Force: 60-600 grams positional control
Dimensions: length 42" (106.6cm), width with laser 63" (160.2cm), width without laser 42" (106.6cm), and height with light tower 72" (182.8cm)
Shipping Dimensions: length 48" (122cm), width 48" (122), and height 69" (175cm)
Shipping Weight: 1700 lbs. (771 kg)
Self Test: power supplies, CPUs, memory, X,Y, Z, θ motion systems, spindle runout and height, vacuum system

POSITIONING SYSTEM

X-Y Drive System: high-performance stepper motor-driven precision belt
X-Y Encoder Type: linear magnetic scale
X-Y Axis Resolution: 0.0002 in. (0.0050mm)
X-Y Axis Maximum Velocity: 30 in/sec (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°
Placement Accuracy: 90µ@ 4 sigmas, 67µ@ 3 sigmas
Z Axis Resolution: ± 0.001" (0.025mm)
Z Axis Repeatability: ± 0.0015" (0.038mm)
Theta Drive System: precision stepper motor-driven anti-backlash twin gear assembly
Theta Axis Resolution: 0.015˚
Theta Axis Repeatability: ± 0.02˚

VISION SYSTEM

Processing Type: ICOS MVS 256 gray level pattern recognition system
Downward Vision System: Standard VU-3
Lightening Type: LED array
Light Level Adjust: automatic software control
Upward Vision System: Optional VU-6
Lightening Type: LED array
Light Level Adjust: automatic software control
Optics Type: Telecentric
Field Of View: 1.5" (38.1mm)
Multiple Fields of View: Automatic for components larger than 1.3" (33mm)
Processing Time Per View: 1-3 seconds typical

PROGRAMMING SYSTEM

Architecture: Concurrent, independent universal programmer at each site
Devices Supported: PROM, EPROM, EEPROM, flash EEPROM, microcontrollers, SPLD, CPLD, FPGA
Technologies Supported: TTL, CMOS, ECL, BiCMOS, Flash, EPROM, EEPROM, fuse, anti-fuse, (including FPGAs)
Included System Controller: Pentium PC, VGA monitor, keyboard
Calibration: automatic self-calibration
Diagnostics: pin continuity test, RAM, ROM, CPU, pin drivers, power supply, communications, cable, calibration, timing, ADC, DAC, actuator, leakage current
Memory: up to 704MB DRAM (64MB per site)
Pin Controllers: one CPU with hardware accelerator per site
Programming Sites: 4 to 11. 1 to 4 sockets per site

PIN DRIVERS

Quantity: 240 per site, up to 2640 total
Voltage: 0 to 25.00V in 25mV steps. High-speed very low voltage device support to 1.5V (Vdd)
Current: 0-1A, 15µA resolution
Slew rate: 0.001 to 2500V/µs
Rise Time: 800ps
Overshoot: none
Timing: 1µs - 1s, ±1µs, ±0.01%
Clocks: continuously variable 390 KHz to 30 MHz
Protection: overcurrent shutdown, power failure shutdown
Independence: pin drivers and waveform generators are fully independent and concurrent on each site

SOFTWARE

File Type: binary, Intel, JEDEC, Motorola, POF, straight hex, hex-space, Tekhex, Extended Tekhex, and others; automatic file type recognition
Device Commands: blank, check sum, compare, options, program, test, verify
Features: graphic display or job status, JobMaster control software, data editor, revision history, session logging, on-line help, device and algorithm information

SYSTEM REQUIREMENTS

Air Pressure: 80 psi (5.56 bars)
Air Flow: 8.1 SCFM (203 1/min)
Optional Temperature Range: 55˚ to 90˚F (13˚-32˚C)
Relative Humidity: 30 - 90%
Floor Space: length 60" (152.4 cm) and width 75" (190.5cm)
Input Line Voltage: 100-240 VAC
Input Line Frequency: 50/60 Hz
Power Consumption: 2.4 KVA

CE

BP MICROSYSTEMS

Setting the Standard in Device Programming

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