

**4610™**  
Automated Programming System**Unparalleled Programming**

Combine the most successful fine-pitch, automated platform available (the 4000 series) and the industry's fastest universal programming technology and you get the 4610. It is the fastest automated programmer available-at 0.24s/Mb\*. Then add support for virtually every device from 1.5V to 5V (Vdd) and you have the most versatile automated programmer on the market. The 4610 requires just 11 sockets and still beats the competition because of its unparalleled programming times and throughput.

- High-speed universal programming system with support for over 23,000 devices
- Production throughput up to 1,200 devices per hour
- Programs Flash memories, FPGAs, antifuse FPGA, PLDs, and Microcontrollers, including MCU's with embedded Flash memory
- Programs at an unsurpassed 0.24s/Mb\* with Sixth Generation Technology
- Very low voltage support down to 1.5V (Vdd)
- On-the-fly vision centering and fine-pitch handling without throughput reduction
- Handles all package types from DIP to  $\mu$ BGA including very small package such as SOT23 and MSOP8, a BPM Microsystems exclusive
- USB 2.0 communications bus
- Most successful line of fine-pitch, automated programming systems
- Configurable options and scaleable capacity are perfect for medium and high volume applications
- Variety of input/output and marking options with tubes, trays or tape
- Laser marking with serialization and date code option



### PICK & PLACE SYSTEM

<b>Handler Throughput:</b>	1200 DPH
<b>Component Processing Range:</b>	SOT23 to 240-pin QFP
<b>Laser Alignment:</b>	component range - SOT23 to 208-pin QFP, minimum pitch 0.5mm
<b>Placement Accuracy:</b>	± 0.0024" (0.06mm)
<b>Placement Repeatability:</b>	± 0.0012" (0.03mm)
<b>Placement Force:</b>	60-600 grams positional control
<b>Dimensions:</b>	length 42" (106.6cm), width with laser 63" (160.2cm), width without laser 42" (106.6cm), and height with light tower 72" (182.8cm)
<b>Shipping Weight:</b>	1700 lbs. (771 kg)
<b>Shipping Dimensions:</b>	length 48" (122cm), width 48" (122), and height 69" (175cm)
<b>Self Test:</b>	power supplies, CPUs, memory, X, Y, Z, $\theta$ motion systems, spindle run out and height, vacuum system

### POSITIONING SYSTEM

<b>X-Y Drive System:</b>	high-performance stepper motor-driven precision belt
<b>X-Y Encoder Type:</b>	linear optical scale
<b>X-Y Axis Resolution:</b>	0.0002" (0.0050mm)
<b>Z Drive System:</b>	high-performance stepper motor driven lead screw
<b>Placement Accuracy:</b>	90 $\mu$ @ 4 sigmas, 67 $\mu$ @ 3 sigmas
<b>Z Axis Resolution:</b>	± 0.001" (0.025mm)
<b>Z Axis Repeatability:</b>	± 0.0015" (0.038mm)
<b>Theta Drive System:</b>	precision stepper motor-driven anti-backlash twin gear assembly
<b>Theta Axis Resolution:</b>	0.015°
<b>Theta Axis Repeatability:</b>	± 0.02"

### VISION SYSTEM

<b>Type:</b>	CyberOptics Laser Align system
<b>Component Location Resolution:</b>	1 micron

### SOFTWARE

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

### SYSTEM REQUIREMENTS

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

### PROGRAMMING SYSTEM

<b>Architecture:</b>	Concurrent, independent universal programmer at each site
<b>Devices Supported:</b>	including, but not limited to, antifuse, low voltage, PROM, EPROM, EEPROM, Flash EEPROM, Microcontrollers, SPLD, CPLD, FPGA
<b>Technologies Supported:</b>	TTL, CMOS, ECL, BiCMOS, Flash, EPROM, EEPROM, fuse, anti-fuse, (including FPGAs)
<b>Included System Controller:</b>	High-Grade Industrial Pentium PC, SVGA monitor, keyboard and mouse
<b>Calibration:</b>	automatic self-calibration
<b>Diagnostics:</b>	pin continuity test, RAM, ROM, CPU, pin drivers, power supply, communications, cable, calibration, timing, ADC, DAC, actuator, leakage current
<b>Memory:</b>	64MB per site
<b>Programming Sites:</b>	4 to 11

### PIN DRIVERS

<b>Quantity:</b>	240 per site
<b>Analog Slew rate:</b>	0.3 to 25V/ $\mu$ s
<b>Vpp Range:</b>	0-25V
<b>Ipp Range:</b>	0-70mA continuous, 250mA peak
<b>Vcc Range:</b>	0-12V
<b>Icc Range:</b>	0-1A
<b>Very low voltage:</b>	to 1.5V (Vdd)
<b>Rise Time:</b>	4ns
<b>Overshoot:</b>	none
<b>Clocks:</b>	continuously variable 1 MHz to 30 MHz
<b>Protection:</b>	overcurrent shutdown, power failure shutdown
<b>Independence:</b>	pin drivers and waveform generators are fully independent and concurrent on each site