



Revolutionary Programming Technology

A revolutionary programming platform delivering managed and secure programming with unrivaled performance at an extraordinary value.



Revolutionary Performance *

- ✓ Engineered for ultra fast read/write speeds greater than **160 MBytes/second with TurboBoost**
- ✓ **2x** faster download speed up to **50 MBytes/second**
- ✓ Larger image file size support up to **256GB file** and extensible up to **512GB**

Architected for managed and secure programming

- ✓ Best-in-class security with LumenX Data Management Software application
- ✓ Comprehensive Traceability Software
- ✓ Secures programming job from point of creation to point of manufacturing

Revolutionary Value

- ✓ Expertly integrated into the PSV7000 and PSV5000 for maximum socket capacity
- ✓ Reduce cost by up to **3x** for the lowest total cost per programmed part
- ✓ Global Service and Support

All roadmaps and features are subject to change without notice



Specifications

Device Support

- eMMC Flash Memory 4.41 - 5.1
LumenX™ supports eMMC standard Speed, HS, HS200 and HS400 modes
- SPI NOR
- Universal Flash Storage (UFS)

Performance

- Up to 160 MB/sec + read
- Up to 160 MB/sec + write
- Up to 50 MB/sec download

File Size Support

- 256GB and extensible up to 512GB

Device Capacity

- 8 single socket adapter boards per LumenX programmer

Network Interface

- 1 Gigabit (1000 BAST-T)

Adapter & Socketing Technology

- Standard burn-in sockets (5,000 - 10,000 insertions per socket)
- High Insertion Count (HIC) for BGA, TSOP, QFP (250,000 insertions per socket)
- Upgrade Kit with UFS Smart Adapter Board for UFS device programming

Programming Yield

- 99.5%

Changeover

- Tool-less

LumenX Data Management Software (for standard PC interface)

- Role based user authentication to control access to create, modify and run programming jobs
- Version Control
- Read from Master
- Basic Serialization
- LumenX Help

Support Contracts

The first year of support for factory parts and labor warranty included in purchase price and can be extended via Annual Support Agreement renewal. The APS support program enables access to new & optimized algorithms, system software and LumenX Software updates and hardware support

Environmental & Regulatory Specification

Operating Temperature Range

- +10° to +30° C

Humidity

- ≤90%

Regulatory Compliance

- CE
- RoHS

System Integration

Automated Programming Systems

- PSV7000 with AH700
- PSV5000 with CH700

Maximum Socket Capacity

- 14 LumenX programmers for up to 112 sockets in PSV7000
- 5 LumenX programmers for up to 40 sockets in PSV5000

Value Added Software/Hardware

- **Automotive Performance PAK includes**
 - Confirm Input Device
 - Tape Label Generator
 - Remote Monitoring
 - Version Control
- **Bar Code Scanning**
- **Command Line Interface**
- **Serialization**
- **ConneX™ Smart Programming Software**



All roadmaps and features are subject to change without notice

Data Management Software



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Shanghai, China, PRC
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The world's premiere automated programming system with the speed, flexibility and fast changeover to handle any job at the lowest total cost of ownership

Velocity: Engineered for speed

Versatility: Designed for ultimate flexibility and zero changeover

Value: Unprecedented capability, quality & investment protection for existing FlashCORE customers



When Velocity Matters

- Up to 2000 devices/hour with tray, tape and tube, even with large file sizes
- Optimized system for faster file download
- FlashCORE III programmers with optimized algorithms
- LumenX programming technology for ultra-fast eMMC programming
- Alignment-on-the-fly
- Zero mechanical changeover

When Versatility Matters

- Smallest device handling from 1.5 mm x 1.5 mm
- Greatest socket density: scalable up to 24 programmers for up to 96 socket capacity
- Concurrently installed media options
- Dual input tray feeder option
- Ergonomic design for easy access to programmers

When Value Matters

- Lowest total cost of ownership
- Investment protections for FlashCORE customers' adapters, algorithms, programming Jobs & value added software
- Backed by Data I/O's global service, & support available 24/7
- Local engineering support

Device Handling System

- **Throughput:** Up to 2000 devices per hour with tape, tray or tube
- **Placement Accuracy:** ± .03 mm
- **Placement Force:** Compliant probe tips, combined with precision placement means the chance for bent pins is virtually eliminated
- **Pick-and-Place Method:** 2 single vacuum nozzles
- **Component Detection:** vacuum sensor
- **Frame Dimensions:** 1250 mm W x 1280 mm D x 1500 mm H (not including media I/O & monitor)
- **Shipping Dimensions:** 1504 mm W x 1534 mm D x 1754 mm H (not including media I/O)
- **Net Weight:** 350Kg
- **Shipping Weight:** 500Kg
- **Regulatory:** CE Compliant, RoHS, WEEE
- **Alignment:** Alignment-on-the-fly alignment (laser based)
- **Component Processing Range:** (1.5 mm x 1.5 mm) to (32 mm x 32 mm)

Positioning System

- **X-Y drive system:** Servo-driven belt drive
- **X-Y-axis resolution:** ±.001 mm using linear encoders
- **Theta-axis resolution:** .072° servo drive
- **X-Y encoder type:** linear/rotary dual encoder
- **Z-drive system:** stepper belt-drive
- **Theta Drive System:** servo motor

I/O Media Options

- **Dual Input Tray Feeder** supports up to 20 JEDEC trays and presents two trays of unprogrammed devices into the work envelop. Jobs ending with blank and programmed devices mixed are sorted at the end of the job.
Dual Input Tray Feeder-EX has an extra tray position ensuring programmed and blank devices never mix
- **Tape-In:** Hover Davis Tape-in 8 mm to 56 mm tape-width
- **Tape-Out:** V-Tek tape out system 8 mm to 56 mm tape-width
- **Tube-In / Out:** Available without any special tooling
- **Manual Tray:** Available without any special tooling

Device Marking Options

- Laser Marker option is modular and integrated into the work envelope
- **Laser Marker:** Solid-state pulsed fiber laser for alpha-numeric / graphic / 2D bar-code laser marks up to 28 mm x 28 mm mark area
 - **Power:** 10 Watt

Additional Options

- **Vision:** 3D Coplanarity Vision System
- **Vision:** 2D Downward Vision System for faster & easier teach

Programmiers

- FlashCORE III
- LumenX

System with "gull-wing" style doors open for easy access to work envelop

System Requirements

- **Air Pressure:** 80 psi (5.5 bar)
- **Air Flow:** 6 SCFM
- **Operational Temperature:** 55° F - 90° F
- **Input Line Voltage:** Single-phase 220V
- **Input Line Frequency:** 50 - 60 Hz
- **Power Consumption:** 1.5 KVA
- **Humidity:** 35% to 90% RH Non-Condensing

Software

- TaskLink for Windows
- AH700
- ConneX™
- Windows 7

Support Options

- Operator training
- Annual Programmer Support (APS)

Service Spares

- PSV7000 Basic Spares Kit
- PSV7000 Supplemental Spares Kit
- PS-FlashCORE III Spares Kit



Universal Device Support

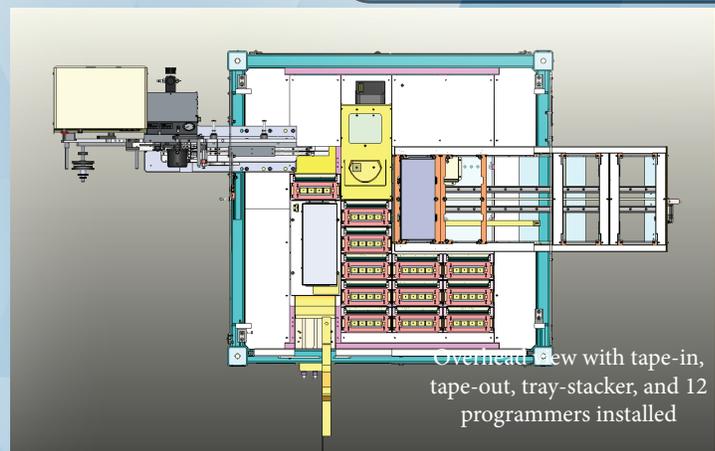
- **FlashCORE:** Flash Memory (NOR, NAND, MCP, MMC, e.MMC, SD, MoviNAND, OneNAND, iNAND, Serial Flash, EEPROM, EPROM and more), Microcontrollers and Logic devices (CPLD, FPGA's, PLD's and more)
- **LumenX:** eMMC, SD and SPI NOR Flash

Package Support

- PLCC, SOIC, SON, WSON, SSOP, CSP, (BGA, uBGA and FPGA, QFP, TQFP, TSOP, PoP, DIP and more)

Device Testing

- Continuity, checksum, blank check, mis-insertion test, verify, backwards device, two pass verify



Overhead view with tape-in, tape-out, tray-stacker, and 12 programmers installed

The PSV5000 is the cost effective entry point for high performance automated device programming. The PSV5000 delivers trusted performance, flexibility & reliability at an affordable price.



Efficient

Designed for optimum performance & flexibility in a compact footprint

- ✓ **Fast programming with easy changeover**
 - up to 1300 parts/hour
 - Scalable 1-6 FlashCORE III programmers (4 to 24 sockets)
 - Scalable 1 to 5 LumenX programmers (1 to 40 sockets)
 - Ideal for first time automation customers
- ✓ **Flexible Options**
 - Integrated media options
 - Fiber laser marking
 - Small parts down to 2 mm x 3 mm
 - Large parts up to 42.5 mm x 42.5 mm
- ✓ **Optimized Algorithms & Universal Device Support**

Reliable

Engineered for highest quality programming, uptime & production yield

- ✓ **Highest quality programming results**
 - HIC adapters for highest programming yield
 - Value added software
- ✓ **Intelligent system design & integration**
 - Proven pick & place head, programming engine & handling software
- ✓ **Integrated vision system for precise placement**
 - +/- 30 micron for repeatable precision placement
 - Support for small parts

Affordable

Developed to deliver high quality automated programming for the lowest cost per programmed device

- ✓ **Lowest Total Cost**
 - Significantly reduce labor cost
 - Save >3x cost per programmed part
 - Maximum socket density in a compact system minimizes floor space and enables quick scaling as production ramps
- ✓ **Investment Protection**
 - Works with existing FlashCORE adapters & algorithms
 - Growing support for LumenX ensures your investment is protected now and in the future
- ✓ **Global Service & Support**
 - Local service, engineering & support
 - Regional spare parts

Device Handling System

- **Throughput:** Handler rated up to 1300 devices per hour
- **Placement Accuracy:** ± .02mm
- **Pick-and-Place Method:** Single-probe stepper actuated z-motion with servo-drive theta (rotation axis)
- **Probe Stroke:** 50 mm (max)
- **Alignment:** Upward looking camera
- **Regulatory Compliance:** CE Compliant, RoHs, WEEE
- **System Software:** TaskLink for Windows, CH700, Windows 7
- **Dimensions :** 1290mm D x 870mm W x 1520mm H (not including media I/O & monitor)
- **Shipping Dimensions:** 1310mm D x 930mm W x 1760mm H (not including media I/O & monitor)
- **Net Weight:** 450kg (992 lbs)
- **Shipping Weight:** 550kg (1212lbs)

I/O Media Options

Any combination of input/output media I/O

- **Tape Input:** 12 mm - 56 mm
- **Tape Output:** 8 mm - 44 mm (adjustable)
- **Tray feeder Input/Output:** Supports up to 20 JEDEC Trays
- **Manual Tray:** Available without any special tooling
- **Tube Input and Output**
- **Reject bin**

Device Marking Option

- **Laser Marker:** Fiber laser marking
- **Power:** 0 - 10 Watts

Value Added Software

- **Serial Number Server**
- **Automotive Performance PAK**
- **NAND Flash Bad Block Management**
- **Data Management Software Suite (LumenX only)**
- **ConneX™ Smart Programming Software**

Support Options & Service Spares

- **PSV5000 Basic Spares Kit**
- **PSV5000 Supplemental Spares Kit**
- **PS- FlashCORE III Spares Kit**
- **Operator training**
- **Extended Service Contracts:** The first year of support is included in the system purchase price and can be extended via extended service support renewal. Data I/O offers a suite of options to covers both hardware and system software (consumables are not included).

Programming Engine, Adapters & Device Support

Programmer

- FlashCORE III with SuperBoost Technology
- Lumen™X technology

Socketing Technology

- **Standard burn-in sockets** (typically 5,000 - 10,000 insertions per socket)
- **High Insertion Count Sockets (HIC)** for BGA, TSOP, QFP (typically 250,000 insertions per socket)

Universal Device Support

FlashCORE III: Flash Memory (NOR, NAND, MCP, MMC, eMMC, SD, MoviNAND, OneNAND, iNAND, Serial Flash, EEPROM, EPROM and more), Microcontrollers and Logic devices (CPLD, FPGA's, PLD's) and more

LumenX: eMMC, SD and SPI NOR with support for additional device technologies in process

Package Support

- PLCC, SOIC, SON, WSON, SSOP, CSP, BGA, uBGA and FPGA, QFP, TQFP, TSOP, PoP, DIP and more

Device Programming & Testing

Program, continuity, checksum, blank check, mis-insertion, test, verify, backwards device, two pass verify, ID check, Illegal bit-check

Requirements

Electrical/Power

- **Input voltage:** 208 - 240 VAC, 50/60 Hz, 1 PHz
- 10 Amps Max

Compressed Air Usage

- **Air pressure:** 80psi (5.5 bar)
- **Air flow:** 6 SCFM (max)

Operatering Temperature

- 55°F to 86°F (+13°C to + 30°C)

Humidity

- 35% to 90% RH Non-Condensing

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