Introduction
Cardio Logic, Inc. (CLI) is a 12-year-old company located in Silicon Valley California and an independent software developer for DigitalGlobe. With the background in chip design, image processing and system integration, CLI provides software, hardware and technical services to customers for high-speed and real-time information extraction from overhead earth images.

Technology
CLI has expertise in camera modeling/calibration for GIS applications, automated software for image production and hardware acceleration of algorithms.

Products
CLI presently offers two satellite image processing products:

**Mojave™ IOPS**
It is an Image Orthorectification Production software that rectifies the perspective distortion of satellite imagery and supports terrain model management, Ground Control Points (GCPs) for better geolocation accuracy and automated batch processing for mass production of orthorectified images or mosaiced tiles in NITF or GeoTIFF format.

**Completeness**

**Draft Ortho**
High-speed GCP correlation is achieved by performing an initial or “draft” orthorectification of the input image based on the original metadata.

**GCPs Alignment**
The metadata are refined to align the GCPs geolocation on the draft orthos to those on the reference images for better geolocation accuracy.

**Tiling and Merging**
Orthorectified images are tiled to support the formats of GIS libraries, such as CIB. Partial tiles are merged into complete tiles, to create continuous wide area coverage without files of unwieldy size.

**Automation**

**GCPs Collection**
Mojave™ IOPS automatically collects Ground Control Points by correlating the images to a reference library like NGA’s Control Image Base (CIB). The computer performs the pixel registration down to the sub-pixel level.

**Library Management**
Mojave™ IOPS automatically searches both terrain model and reference image libraries, retrieves and assembles the appropriate files for each image.

**Quality**

**Accuracy**
The GCP-aligned geolocation accuracy has been reviewed by DigitalGlobe and found to be comparable to their processes.

**Resampling**
Nearest neighbor, bilinear filtering, cubic convolution

**Specifications**

**Sensors supported: QuickBird-2 imagery**

**File formats**
Input imagery: NITF, TIFF
Output imagery: NITF, GeoTIFF
Projection: Geographic, UTM
Terrain models: DTED, SRTM
Reference Images: CIB

**Image size: Up to 4 GB**
Width x Height: Up to 64K x 64K pixels
Simplicity

User Friendly Interface
Mojave™ IOPS Graphical User Interface (GUI) features the ultimate in simplicity that allows operators to become productive with little training. All requisite parameter fields are assigned default values automatically.

Batch Processing
Mojave™ IOPS GUI allows operators to select multiple images for batch processing and specify multiple processing steps to be performed.

Speed
Geo100M™ orthorectifies images at 10 Mpixels per second. It will take 1.5 minutes, instead of 17 minutes by any software, to orthorectify a 1.6 GB (27552 x30564x16bits) single-band image at 0.70 meters Ground Sample Distance.

By adding the capability of automated image correlation and various processing utilities, Geo100M becomes an Image Orthorectification Production System (IOPS™) that enjoys dramatically cost and performance advantages over any other commercially available solutions.

Part Number
Mojave™ IOPS: IOPS-10-RPC-APP-WINNL
Geo100M™: G100-10-RPC

Configuration
OS: WINDOWS XP PRO SP2
CPU: Dual Core Xeon Proc 2.33GHz
RAM: 2GB, DDR2 SDRAM 667MHz
HDs: 500GB RAID 0 3.0Gb/s, 7200RPM
Video: Dual Monitor VGA and DVI Output
Engine: Magine2™ PCIe x8 Ortho Accelerator
Network: PCIe x4 slots for 10 Gigabit Ethernet

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