



## High-performance satellite orthorectification for Rolta Geomaging Accelerator



By moving to the GPU-based GXL architecture, satellite orthorectification, pansharpen and mosaics have gained remarkable speed and performance boosts. This Automated Workflow provides Rational Function model calculation and orthorectification within the GPU-based, load-balanced, distributed GXL architecture.

### New speed and flexibility

With the launch of the Rolta Geomaging Accelerator (GXL), a high-performance, hardware-optimized image processing system, Rolta India Ltd is fielding a powerful competitor in the photogrammetric pre-processing and value add segments.

Based on off-the-shelf hardware components and industry standards such as nVidia CUDA, the Rolta Geomaging Accelerator provides a framework for high-speed image processing through automation and technical expertise, including:



### Ortho Metrics - Dual GPU

Product Type	Dataset	Resolution [m]	Volume [GB/min]	Volume [TB/Day]	Area [km <sup>2</sup> /day]
SPOT5 - Level 1A 2.5 meter	8U Pan	2.5	1.42	2.00	13.7 Million (Europe: 10.1M)
IKONOS - Geo Ortho Kit	16U Pan Ikonos	1.0	2.09	2.94	1.62 Million (Saudi Arabia: 1.96M)
WorldView-1 and Quickbird Level 1B	16U Pan	0.5	2.32	3.26	448k (Sweden: 450k)
Quickbird - OrthoReady - 4 channel PS	16U Multispectral	0.6	2.50	3.52	174k (Florida: 170k)
Quickbird - Level 1B	16U Multispectral	2.4	3.25	4.57	3.62 Million (India: 3.17M)

**GPU chipsets:** Graphical Processing Units are uniquely suited to complex mathematical transformations with greater speed and precision than traditional CPUs.

**Cloud processing:** The Job Processing System (JPS) defines and, through a web interface, manages the job capability and workload of each CPU/GPU in an n-node distributed environment.

**Modular workflows:** Image processing jobs can be chained together, run with multiple parameter sets, and components re-used to reduce migration and update costs.

## Rolta Ortho XL Capabilities

Automatic Rational Function Model Calculation  
High-accuracy, fully automated model calculation with or without additional ground control

## High Speed Satellite Orthorectification

Calculate your satellite orthos at full 1:1 sampling faster than ever before, thanks to nVidia GPU processing

## Full Sensor Support

Worldview-1-2, Quickbird, ALOS AVNIR/PRISM, GOSAT, MERIS (ENVISAT), KOMPSAT-1-2, ASTER, MODIS, FORMOSAT-2, CATROSAT-1, CBERS-1/2/2B, EROS-A-B, SPOT 1-3, 4-5, RapidEye 1-5, LandSat 1-5/7, Geoeye-1, IKONOS, OrbView-3

## Rolta Ortho XL takes full advantage of the GXL architecture

### Distributed cloud computing

Flexible processing nodes on standard hardware report their availability and optimize their workloads.

### Job and process management

Included in the GXL is the Job Processing System for defining and automating job classes, user permissions, priorities, and node management.

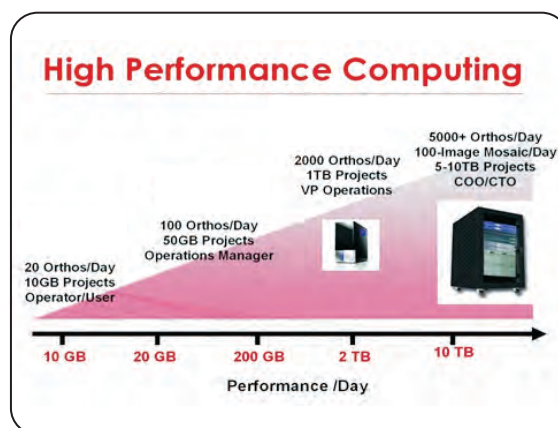
### Sustainable growth

Using standard hardware and new, expanded workflow, the GXL will scale in throughput and capability as your projects do

### Ortho speed and performance

### Note:

1. High Performance Air photo Orthorectification for GXL available for Ultracam and DMC.
2. Separate GXL available for Pansharpen, Mosaicking & Other Applications.



Orthorectification results show significant gains, even from a conservative desktop system using dual nVidia GTX 280 GPUs and 7200RPM HDDs.

### Integrated workflow

Due to the flexible combination of GXL and workflow, additional steps can be added to complete your project, including Mosaic XL:

- Automatic tie-point collection
- Automatic GCP collection using image-to-image registration
- Automatic color-balancing
- Automatic cutline selection
- Mosaic preview generation for manual QA/QC
- Formatting, clipping, tiling, and reprojection



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