

## Image Processing ProPack

### IMAGE PROCESSING PROPACK

Extend the functionality of the PCI ProSDK through the Image Processing ProPack, which enables flexible use and automation of PCI Geomatics' robust image processing technology.

The Image Processing ProPack includes PCI Pluggable Functions (PPFs) that implement image enhancing, filtering, resampling, and scaling operations. Other PPFs are included to provide data management, as described below.

#### Image Filtering

- EDGE - Generates edge maps and gradient direction maps for a set of image channels, using the Canny method.
- FCONT - Computes the upward/downward continuation of a potential field image channel.
- FED - Generates an edge map for an image channel, using the mean neighbourhood absolute difference method.

#### Noise-suppression Filters

- FAV - Applies an averaging filter to a set of image channels.
- FME - Applies a median filter to an image channel.
- FMO - Applies a mode filter to an image channel.
- FGA - Applies a Gaussian filter to an image channel.

#### Sharpening and Edge-extraction Filters

- FSHARP - Applies edge sharpening to an image channel.
- FPRE - Generates an edge map for an image channel using the Prewitt method.
- FSOBEL - Generates an edge map for an image channel using the Sobel method.

#### Frequency Domain Filters

- FRD2P - Applies the reduction to pole filter to a potential field image channel.
- FFREQ - Applies a user-defined filter or pre-defined radial filter to the channels of a frequency domain image.
- FTF - Applies either the Fourier, Hadamard, Walsh, or cosine transformation to an image channel.
- FTI - Applies the inverse of either the Fourier, Hadamard, Walsh, or cosine transform to a set of image channels.
- FVDIF - Computes the Nth order vertical differentiation of a potential field image channel.

#### Principal Component Analysis

- PCA - Computes a principal components analysis for 2 to 256 image channels.

#### Miscellaneous Image Operations

- DECCOR - Applies a decorrelation transformation on 2 to 256 channels of image data.
- FUN - Generates a lookup table to for a specified function and saves it in a lookup table segment.
- LUT - Transforms a set of image channels according to a set of lookup tables.
- MATCH - Computes and saves a lookup table that represents the histogram matching one image channel to another.
- MTE - Transforms three image channels that are interpreted as intensity, red-green, and blue-yellow into three image channels that are interpreted as red, green, and blue.
- STR - Generates a lookup table segment to perform contrast stretching of image data.

# Technical Specifications

- SCALE - Scales a set of image channels from one pixel value range to another.
- MAL - Applies an orthogonal 2D wavelet transform to an image channel.
- PCE - Applies a pseudocolor lookup table to convert an input image channel to red, green, and blue image channels.

## **SOME OF THE INCLUDED COMPLEMENTARY PPFs**

### ***Image Management***

- IMERGE
  - Merges multiple geocoded rasters into a single file.
- REPROJ
  - Reprojects images, bitmap segments and vector layers to a specified projection.
- CLIP
  - Clips layers based on a user defined clip region.
- TILE
  - Creates multiple subset tiles from a single file.
- PYRAMID
  - Build an image pyramid for one or more image layers in a data file.

### **For more information, contact**

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