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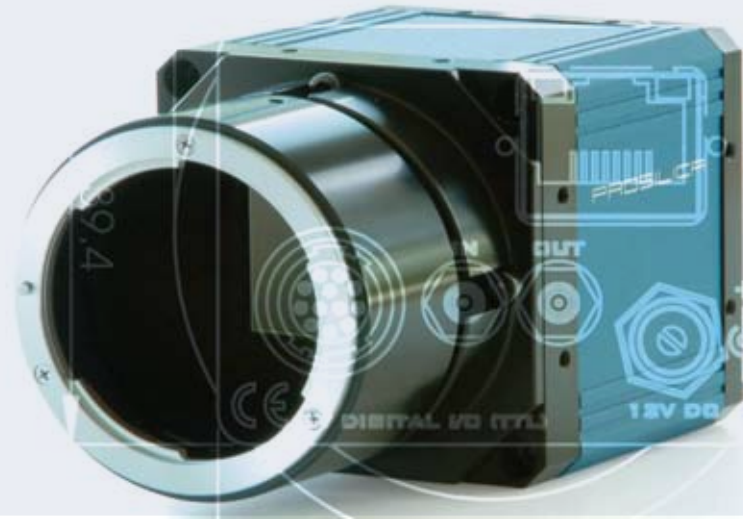
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## Prosilica Adds New Camera Feature: Auto Gain

Prosilica is pleased to announce the addition of the *Auto Gain* function to its already rich set of cameras features, some of them, unique to our brand. This new function is available on all four ranges of Prosilica's Gigabit Ethernet cameras (GE-Series, GC-Series, GB-Series and GS-Series).

**Auto Exposure vs. Auto Gain**

In photographic terms, exposure is the amount of time that the sensor is exposed to the light. *Auto-exposure* is often used in outdoor applications where lighting conditions vary widely. When set to auto-exposure, the Prosilica camera will automatically adapt the exposure depending on the current light conditions. However, when viewing a moving object, it is necessary to limit the exposure time in order to minimize blur caused by motion. If this exposure limit does not provide a bright enough image then gain

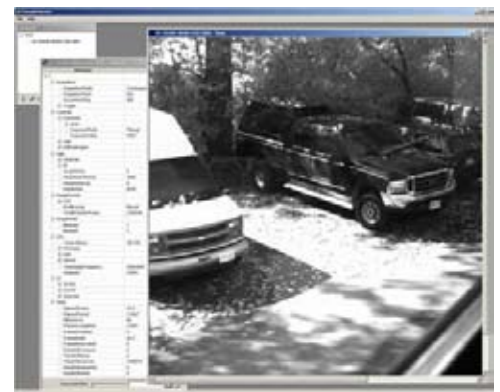
can be used. *Gain* is an amplification of the image signal, similar to the contrast control on a television set. This function is very useful when a short exposure is required (say, to reduce motion blur) because gain can be increased to optimize the image signal. However, gain amplifies not only the signal, but also image noise.

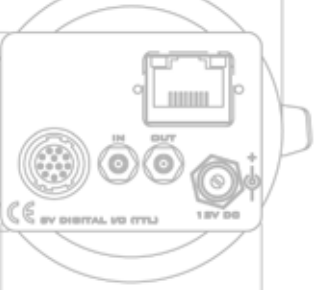
Prosilica provides very flexible *auto-iris*, *auto-exposure* and *auto-gain* features that work together seamlessly to optimize image performance in variable light environments.

The camera *Gain* function has three modes: Auto, Manual and AutoOnce modes. Each mode can be controlled by various parameters. To view the full list of *Auto Gain* parameters, please go to [http://www.prosilica.com/support/gige/ge\\_controls.html#Gain](http://www.prosilica.com/support/gige/ge_controls.html#Gain).

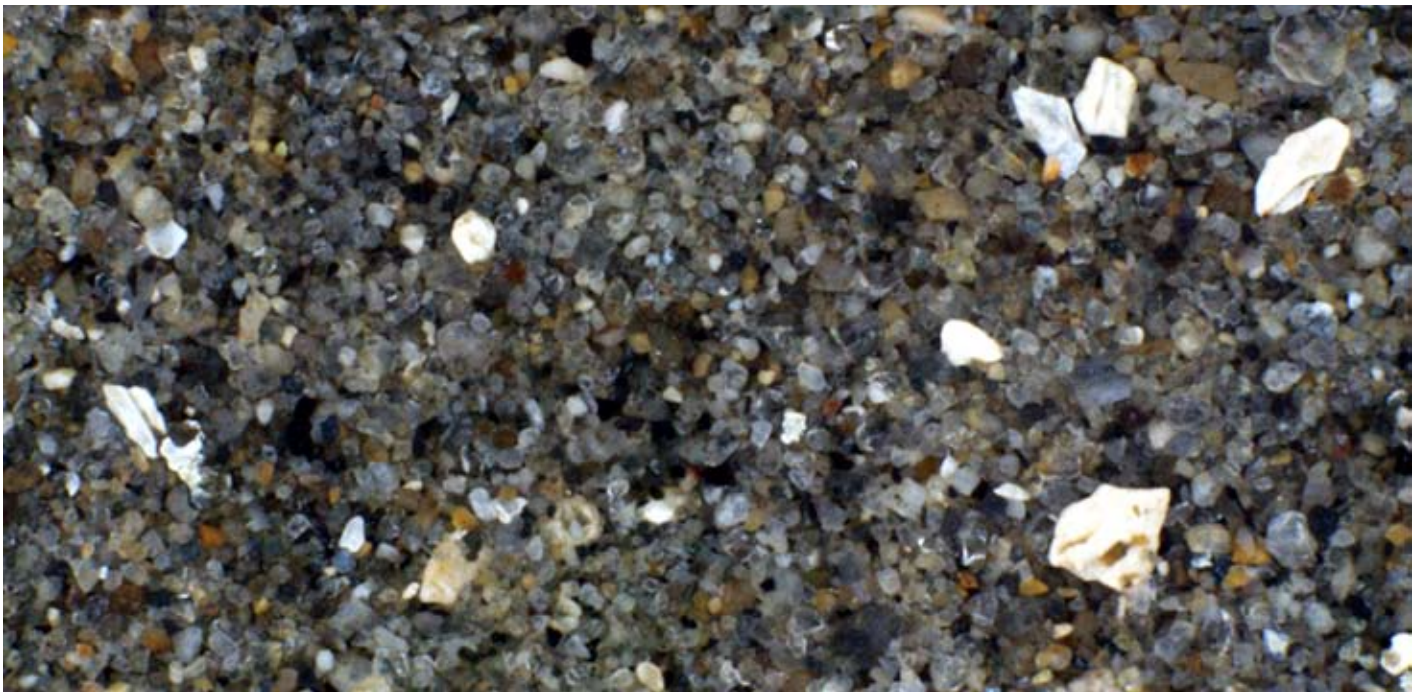
**Firmware upgrade**

In order to take full advantage of the *Auto Gain* function, existing users of Prosilica GigE cameras will need to update their firmware to the latest version (1.34) released on 8<sup>th</sup> January 2009. To do so, please go to: [http://www.prosilica.com/support/gige/ge\\_download.html](http://www.prosilica.com/support/gige/ge_download.html).





## GC2450C in USGS Ocean Sedimentation Study



*Image of sand grain taken off the coast of Santa Cruz, California with the Prosilica GC2450C camera*

The US Geological Survey (USGS) is renowned worldwide for its studies on the environment. The organization aims to provide reliable scientific information to describe and understand the Earth.

One of its divisions, the USGS Coastal & Marine Geology Program (CMGP) focuses on research on the coastal and marine environment such as river and ocean sedimentation. The program has three field centers in the US, Wood's Hole - Massachusetts, St Petersburg - Florida and Menlo Park / Santa Cruz - California where this current project is based.

### **Sand grains study**

One of the project's objectives is to

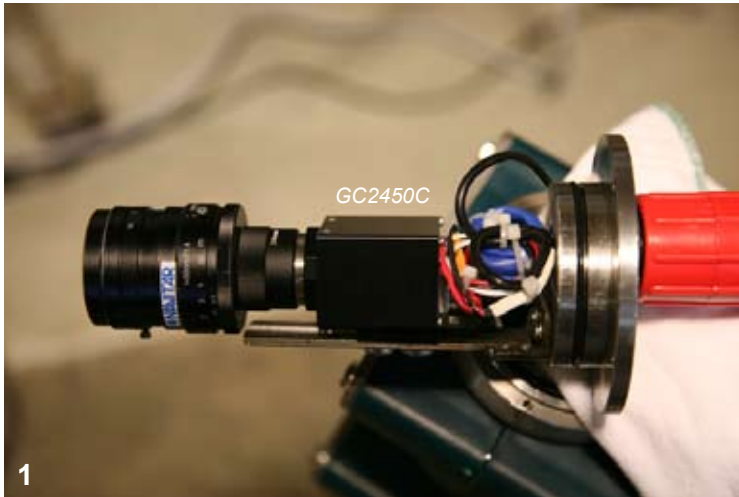
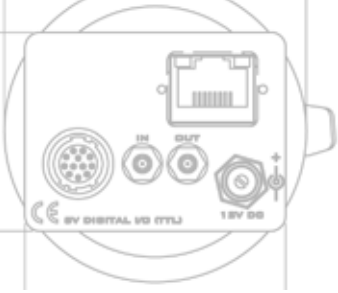
capture close-up color images of sand grains in order to study their coarseness and how their size influences re-suspension of sediments by waves and currents. The team will be looking to develop a theoretical model to predict how the sea-bed morphology off the Californian coast line might change over time and, in the longer term, study changes in ocean behavior.

The USGS has undertaken similar projects in the past (e.g. Grand Canyon Monitoring and Research Center's study of sediments in the Colorado river), however this is the first time that the organization has used a camera with Gigabit Ethernet technology.

### **System set-up**

The Prosilica camera used in this system is the 5-megapixel GC2450C (color model) with Gigabit Ethernet output. The camera, which features the high-quality Sony ICX-625 CCD image sensor, was selected by the team at the CMGP for its excellent image quality, high sensitivity, low noise, high resolution (2448 x 2050) and ultra-compact size (33x46x43mm).

The GC2450C is set-up inside a 30.5cm (12") long and 9cm (3.5") outside diameter stainless steel pressure housing with 5mm (.2") thick acrylic windows fitted with a light ring to ensure even lighting around the main target area. The pressure housing itself is mounted on a



1. GC2450C camera assembly close-up , 2. Platform with sand grain image during initial tests, 3. Camera and light ring during tests

custom-made tripod which is operated (i.e. raised and lowered into the ocean) by a hydraulic system. The system is linked to a PC located off the Santa Cruz wharf via a 100 meter (300ft) long Cat-6 cable. The GC2450C is fitted with a macro-lens.

### Technical challenges

After being tested at the marine facility in Santa Cruz, where technicians were working on camera focusing, a crucial matter for this project as the team will be studying sand grain particles measuring

approximately a few tenth of a millimeter, the system has now been moved to the ocean just off the coast of Santa Cruz, California where it will be lowered at the bottom of the ocean every hour or two depending on conditions to capture aerial view images of sand grains. In the event of a storm the camera will be set to image more frequently to observe the higher activity. Other sensors will monitor other factors such as turbidity, solidity, concentration and grain size of particles and wave pressure to further study all the elements influencing sedimentation.

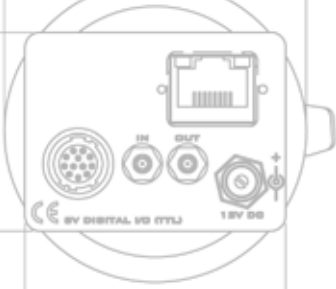
» **For further information:**

### Prosilica GC2450C

<http://www.prosilica.com/products/gc2450.html>

### USGS Coastal & Marine Geology Program

<http://marine.usgs.gov/>



## Which Prosilica Camera?



Prosilica currently offers over 90 different models of compact and high performance Gigabit Ethernet cameras. All Prosilica cameras are plug-and-play for quicker and cheaper integration and do not require a frame-grabber.

The first step to choosing the correct camera is to define the basic camera requirements for your application. These include resolution, sensitivity, color and software considerations.

### Resolution

Ideally, you should choose the lowest resolution that will meet your requirements. This is important for a couple of reasons. Firstly, the higher the resolution, the more image processing for the host computer. It's always best to use the computer to perform machine vision functions than use it for processing extraneous resolution. Prosilica produces cameras ranging from VGA to 16 Megapixel resolution.

### Sensitivity

In most applications, higher sensitivity is better. Higher sensitivity means that shorter exposure times, lower gain settings and lower-cost optics can

be used. Shorter exposure times are particularly important in moving-scene applications where motion blur could degrade the image. Sensitivity can also be increased by using "binning," a camera function common on Prosilica cameras that can drastically increase sensitivity. A number of Prosilica cameras also use Sony Ex-View HAD sensors, which provide excellent image quality and sensitivity.

### Color

Unless your application strictly requires color, we would recommend to buy monochrome. The use of color adds a level of complexity that should be avoided unless your application truly needs color. Color cameras produce larger amounts of data than monochrome cameras meaning greater image processing burdens. Color also negatively affects camera sensitivity and image resolution. Most Prosilica cameras are available in monochrome and color models.

### Software

Prosilica provides an excellent SDK free of charge to facilitate system integration and minimise set-up costs.

Our cameras are also well supported by industry-leading machine vision software from National Instruments, Matrox, MVTec, Stemmer, Norpax, and others.

### Specialist cameras

Prosilica's newest series, GB-Series and GS-Series, have been specifically designed for use in OEM applications, and for industrial and microscopy applications respectively.

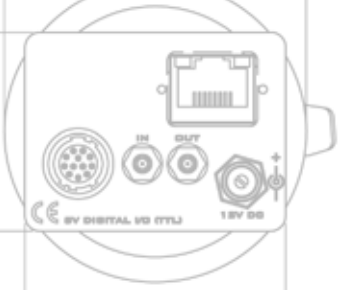
### » For further information:

#### All Prosilica cameras at a glance

<http://www.prosilica.com/products/allmodels.html>

#### Contact our sales team

[sales@prosilica.com](mailto:sales@prosilica.com)



## Prosilica Introduces ...

**PROSILICA**

### **Paul Mok**

Technical Sales Engineer

Prior to joining Prosilica Paul has worked as an Applications and Systems Engineer in the embedded electronics industry for 11 years.

Paul is a Professional Engineer and holds a Bachelor's degree in Electrical and Electronic Engineering from the UK.

Paul will be working closely with other members of the Prosilica sales team to drive our sales force.

### **We are recruiting:**

#### **Operations**

- System Administrator

» **To view the full job descriptions and to apply, please visit:**  
<http://www.prosilica.com/company/jobs.html>

## New Sales Channels

### **United States and South America**

Following Prosilica's acquisition by Allied Vision technologies (AVT) in July 2008, AVT Inc., the US based branch of AVT, will be acting as distributor for Prosilica cameras in the United States and South America (with the exception of Brazil where InviSys ([www.invisys.com.br](http://www.invisys.com.br)) will remain our distributor).

» Contact AVT Inc.

### **Spain & Portugal**

Infaimon ([www.infaimon.com](http://www.infaimon.com)) has become Prosilica's new distributor for Spain and Portugal. Infaimon has offices in Madrid and Barcelona (Spain) and Aveiro (Portugal).

### **Published by:**

#### **Prosilica Inc.**

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# the World's smallest GigE cameras

## GC-Series: Concentrated Performance

Our cameras are designed and manufactured in-house to deliver a more robust and integrated product that meets the highest quality standards. Our products are noted for their high performance, ultra-compact size, light weight, fast frame rates, wide range of resolution (from VGA to 16 megapixel), advanced triggering, sophisticated controls, industrial ruggedness, rich set of camera features and extreme versatility.