The Photometrics® Cascade:512F digital imaging system from Roper Scientific® offers very high sensitivity through the use of on-chip multiplication gain. A 512 x 512-pixel array (16 x 16-µm pixels) enhances this sensitivity, while providing good field of view. The 16-bit, thermoelectrically cooled system can be operated at 10 MHz for high-speed image visualization or more slowly for high-precision photometry. Supravideo frame rates are achievable via subregion readout. The camera can be configured with dual amplifiers in order to ensure optimal performance not only for applications that demand high sensitivity (e.g., single-molecule fluorescence), but also for those requiring wide dynamic range (e.g., standard live-cell fluorescence).

### Features | Benefits
---|---
On-chip multiplication gain | Very high sensitivity  
| Low-noise, impact-ionization process
512 x 512 imaging array  
16 x 16-µm pixels | Good field of view and sensitivity  
| Good resolution
10-MHz readout  
5- and 1-MHz readout | Excellent for high-speed image visualization  
| Perfect for high-precision photometry
Dual amplifiers* | Select readout mode via software for optimized (1) high-speed / high-sensitivity performance or (2) wide-dynamic-range performance
16-bit digitization | Good dynamic range allows detection of both bright and dim signals in the same image
Frame-transfer CCD | 100% duty cycle to collect continuous data  
| No mechanical shutter required
Thermoelectric cooling | Reduces background for high sensitivity
C-mount | Easily attaches to microscopes, standard lenses, or optical equipment
PCI interface | Works with Windows® (98SE and later) and Mac operating systems
Enhanced PVCAM®  
Circular buffers  
Device sequencing | Compatibility with numerous third-party software packages  
| Provides real-time focus  
| Enables precise integration with shutters, filter wheels, etc.

*The camera is also available in a configuration that features an "on-chip multiplication gain" amplifier only.*
Specifications

<table>
<thead>
<tr>
<th>Region</th>
<th>512 x 512</th>
<th>256 x 256</th>
<th>128 x 128</th>
<th>64 x 64</th>
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<tbody>
<tr>
<td>Binning</td>
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<td>1 x 1</td>
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<td>106</td>
<td>147</td>
<td>185</td>
<td>210</td>
</tr>
</tbody>
</table>

Note: Frame rates are measured at 10 MHz with 0-second exposure times.

When you’re SERIOUS about high-performance imaging...

USA East Coast 609.587.9797  USA West Coast 520.889.9933  Benelux +31.347.324989
France +33.160.86.03.65  Germany +49.89.660.779.3  Japan +81.43.274.8022

www.roperscientific.com