### Camera Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Resolution</th>
<th>Sensor</th>
<th>FPS</th>
<th>Bit Depth</th>
<th>Read Noise</th>
<th>Binning</th>
<th>Region of Interest</th>
<th>Color (Color/Mono)</th>
<th>Cat # (Color/Mono)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-1</td>
<td>1280X1024</td>
<td>1/2&quot; CMOS</td>
<td>15</td>
<td>8 bit</td>
<td>10</td>
<td>20 ppm</td>
<td>N/Y</td>
<td>Y</td>
<td>INFINITY I-1-2C or M</td>
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<tr>
<td>I-2</td>
<td>2048X1536</td>
<td>1/2&quot; CMOS</td>
<td>5</td>
<td>8 bit</td>
<td>10</td>
<td>20 ppm</td>
<td>N/Y</td>
<td>Y</td>
<td>INFINITY I-2-2C or M</td>
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<tr>
<td>I-3</td>
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<td>1/2.5&quot; CMOS</td>
<td>5</td>
<td>8 bit</td>
<td>10</td>
<td>20 ppm</td>
<td>N/Y</td>
<td>Y</td>
<td>INFINITY I-3-2C or M</td>
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<td>I-4</td>
<td>2048X1536</td>
<td>1/2.5&quot; CMOS</td>
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<td>8 bit</td>
<td>10</td>
<td>20 ppm</td>
<td>N/Y</td>
<td>Y</td>
<td>INFINITY I-4-2C or M</td>
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<tr>
<td>I-5</td>
<td>2048X1536</td>
<td>1/2&quot; CMOS</td>
<td>5</td>
<td>8 bit</td>
<td>10</td>
<td>20 ppm</td>
<td>N/Y</td>
<td>Y</td>
<td>INFINITY I-5-2C or M</td>
</tr>
<tr>
<td>I-6</td>
<td>2048X1536</td>
<td>1/2&quot; CMOS</td>
<td>5</td>
<td>8 bit</td>
<td>10</td>
<td>20 ppm</td>
<td>N/Y</td>
<td>Y</td>
<td>INFINITY I-6-2C or M</td>
</tr>
<tr>
<td>I-7</td>
<td>2048X1536</td>
<td>1/2&quot; CMOS</td>
<td>5</td>
<td>8 bit</td>
<td>10</td>
<td>20 ppm</td>
<td>N/Y</td>
<td>Y</td>
<td>INFINITY I-7-2C or M</td>
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<tr>
<td>I-8</td>
<td>2048X1536</td>
<td>1/2&quot; CMOS</td>
<td>5</td>
<td>8 bit</td>
<td>10</td>
<td>20 ppm</td>
<td>N/Y</td>
<td>Y</td>
<td>INFINITY I-8-2C or M</td>
</tr>
<tr>
<td>I-9</td>
<td>2048X1536</td>
<td>1/2&quot; CMOS</td>
<td>5</td>
<td>8 bit</td>
<td>10</td>
<td>20 ppm</td>
<td>N/Y</td>
<td>Y</td>
<td>INFINITY I-9-2C or M</td>
</tr>
</tbody>
</table>

#### INFINITY Analyze Software

All Lumenera INFINITY cameras include INFINITY ANALYZE software, allowing complete camera control and advanced image acquisition and analysis. Features include:

- Real time video preview
- Measurement and evaluation
- Archiving with search by date, author, description
- Fluorescence image composition including RGB Look-up Tables (LUT)
- Image capture and time lapse
- Image stitching
- Automatic/manual exposure and gain adjustment
- Pan, zoom, auto gain, contrast, brightness and gamma controls
- Enhanced image processing
- Customizable interface for specific applications
- Embedded histogram
- Drag and drop measurement data to extract for analysis
- Save and restore camera settings
- Control number of hot key functions
- Enhanced focus enhancement

Also included in INFINITY Capture, an intuitive user interface that contains all of the basic features needed to control the camera and capture images.

Easily integrate your INFINITY camera with 3rd party software applications through our TWAIN and DirectShow/WDM interfaces (included).

#### OEM Custom Camera Design

As a Lumenera OEM customer you can now leverage the success of the INFINITY camera line through our custom camera development.

Our unique options for OEM custom software features and hardware camera design offer the following advantages:

- **Improve Time to Market**
- **Reduce Development Costs**
- **Differentiate from the Competition**

For more information e-mail scientificsales@lumenera.com.

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#### Mac Plug-In for INFINITY Cameras

**NEW Mac Compatible**

A Mac Plug-in for all INFINITY cameras is now available.

- Compatible with Mac OS 10.4 or greater (Quick Time X)
- Visit Lumenera’s web site to download the latest version.

INFINITY DIGITAL MICROSCOPY CAMERAS

INFINITY

INFINITY Corp Office: 7 Capella Court, Ottawa, ON, Canada K2E 8A7
Phone: 613-730-4577 Fax: 613-730-4671
www.lumenera.com

INFINITY ANALYZE Software

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<th>Region of Interest</th>
<th>Cat # (Color/Mono)</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFINITY 1</td>
<td>1/2&quot; CMOS 1280 x 1024</td>
<td>1.3 MEGAPIXEL</td>
<td>15</td>
<td>8 or 10</td>
<td>20 μs</td>
<td>Y</td>
<td>Y</td>
<td>INFINITY 7-2/2C or M</td>
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<tr>
<td>INFINITY 2</td>
<td>1/2&quot; CMOS 2048 x 1536</td>
<td>1.6 MEGAPIXEL</td>
<td>15</td>
<td>8 or 10</td>
<td>12 μs</td>
<td>Y</td>
<td>Y</td>
<td>INFINITY 7-2/2C or M</td>
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<tr>
<td>INFINITY 3</td>
<td>1/2.5&quot; CMOS 2592 x 1944</td>
<td>3.0 MEGAPIXEL</td>
<td>10</td>
<td>8 or 10</td>
<td>20 μs</td>
<td>Y</td>
<td>Y</td>
<td>INFINITY 7-2/2C or M</td>
</tr>
<tr>
<td>INFINITY 4</td>
<td>1/2&quot; Cooled CMOS 1392 x 1040</td>
<td>1.4 MEGAPIXEL</td>
<td>15</td>
<td>8 or 12</td>
<td>12 μs</td>
<td>Y</td>
<td>Y</td>
<td>INFINITY 7-2/2C or M</td>
</tr>
<tr>
<td>INFINITY 5</td>
<td>1/2.5&quot; Cooled CCD 1616 x 1216</td>
<td>2.0 MEGAPIXEL</td>
<td>15</td>
<td>8 or 12</td>
<td>12 μs</td>
<td>Y</td>
<td>Y</td>
<td>INFINITY 7-2/2C or M</td>
</tr>
<tr>
<td>INFINITY 6</td>
<td>2/3&quot; Cooled CCD 2080 x 1536</td>
<td>3.3 MEGAPIXEL</td>
<td>10</td>
<td>8 or 10</td>
<td>20 μs</td>
<td>Y</td>
<td>Y</td>
<td>INFINITY 7-2/2C or M</td>
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<tr>
<td>INFINITY X</td>
<td>1/2&quot; CMOS 1600 x 1200</td>
<td>1.1 MEGAPIXEL</td>
<td>15</td>
<td>8 or 10</td>
<td>20 μs</td>
<td>Y</td>
<td>Y</td>
<td>INFINITY 7-2/2C or M</td>
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<tr>
<td>INFINITY X</td>
<td>1/2&quot; Cooled CCD 5120 x 4096</td>
<td>1.0 MEGAPIXEL</td>
<td>15</td>
<td>8 or 10</td>
<td>20 μs</td>
<td>Y</td>
<td>Y</td>
<td>INFINITY 7-2/2C or M</td>
</tr>
</tbody>
</table>

**INFINITY Camera Specifications**

- Auto/Manual Exposure
- Auto/Manual White Balance
- Programmable Gain, 1 to 10X Optimizable
- INFINITY 1, 2, 3—C-Mount Lens Adapter, INFINITY 4—F-Mount Lens Adapter
- USB 2.0 High-Speed Interface (USB 480 MB/s vs. Firewire 400 MB/s)
- Power: INFINITY 1 & 2—USB Bus Power
- INFINITY 3—External 5VDC–500mA
- INFINITY 4—External 12VDC–1A
- INFINITY X—External 6VDC—500mA
- Operating Temperature 0 ºC to + 50 ºC
- Operating Humidity 5% to 95%, Non-condensing

**INFINITY ANALYZE Software**

All Lumenera INFINITY cameras include INFINITY ANALYZE software, allowing complete camera control and advanced image acquisition and analysis. Features include:

- Real-time data presentation
- Measurement and annotation
- Analysis with saved data, graph, description
- Flattened image compression including RGB Look-up Tables (LUT)
- Image capture and data base
- Image stitching
- Optical magnification of captured images
- True, autochrome, gamma, contrast, brightness and gamma controls
- Adjustable image processing
- Context specific interfaces for specific applications
- Pixel insertion/deletion
- Drag and drop measurement data to export for analysis
- Save and release camera settings
- Control variations that are all functions
- Optimize focus enhancement

Also included in INFINITY CAPTURE, an intuitive user interface that contains all of the basic features needed to control the camera and capture images.

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  - Reduced Development Costs
  - Differentiates from the Competition

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Cytology, Defect Analysis, Semiconductor Inspection, Metrology
Brightfield, Darkfield, DIC, Live Cell Imaging, Histology, Pathology,
Applications

INFINITY
1-1
INFINITY
1-1
INFINITY
INFINITY Camera Selection

INFINITY CMOS Cameras

High to Moderate Illumination
")

Chromatography
Gel Documentation

Gel Documentation

Applications
Brightfield, Darkfield, DIC, Live Cell Imaging, Histology, Pathology,
CytoDynamics, Direct Analysis, Semiconductors Inspection, Metallurgy

C 5.1 Megapixel CMOS Color Camera
C 10.7 Megapixel CCD Color Camera
C 1.4 Megapixel Cooled CCD Color Camera
C 2.0 Megapixel CCD Color Camera
C 1.3 Megapixel CMOS Color Camera
C 1.0 Megapixel CMOS Color Camera
C 1.3 Megapixel CMOS Monochrome Camera
C 3.1 Megapixel CMOS Color Camera
C 3.3 Megapixel CCD Color Camera
C 2.0 Megapixel CCD Color Camera
C 1.4 Megapixel Cooled CCD Color Camera
C 1.0 Megapixel CMOS Color Camera
C 3.1 Megapixel CMOS Monochrome Camera
C 5.0 Megapixel CMOS Color Camera

Features include auto white balance, full-exposure control, programmable gain, sub-windowing and region of interest. Ideal for high-end scientific, medical and life science applications.

INFINITY Multi-Model USB 2.0 cameras exhibit almost identical frame rates by resolution. These frame rates are usually limited by the sensor read-out rate and not by the physical interface. As an example, a 1 megapixel CMOS sensor using a FireWire USB 2.0 interface is limited to 15 or 30fps depending on the camera model. As resolution increased, frame rates decrease.

USB 2.0 camera is an essential tool for clinical, medical and educational professionals where high resolution is required. USB 2.0 interface is available for all CMOS (10-bit) and Cooled (12-bit) models.

USB 2.0

FIREWIRE

MS 10-bit (10-bit)

MS 10-bit (10-bit)
INFINITY1 CMOS Cameras

**Highlights**
- 1, 3 and 5 megapixel resolution
- Perfect for documentation and archiving applications
- Flat frame rates

The INFINITY1 CMOS USB 2.0 cameras are designed to be a cost- effective, versatile solution for a wide range of microscopy imaging applications. Features include auto white balance, high frame rates, fast frame rates, programmable gain, sub-windowing and region of interest. An excellent fit for documentation and archiving applications.

**Applications**
- Brightfield
- DIC
- Live Cell Imaging
- Histology
- Pathology
- Cytology
- Defect Analysis
- Semiconductor Inspection
- Metrology

INFINITY1-1T/C
- 1.0 Megapixel CMOS Color Camera

INFINITY1-1M/3M
- 1.3 Megapixel CMOS Monochrome Camera

INFINITY1-3C
- 3.1 Megapixel CMOS Color Camera

INFINITY1-5C
- 5.0 Megapixel CMOS Color Camera

INFINITY1-5M/3M
- 5.0 Megapixel CMOS Monochrome Camera

**INFINITY2 CCD Cameras**

**Highlights**
- 1, 2 and 3 megapixel resolution
- Higher dynamic range for quantitative analysis
- Flat frame rates
- Low noise electronics

Equipped with a high-quality, Sony CCD sensor, INFINITY2 CCD USB 2.0 cameras offer excellent resolution, high dynamic range and a 12-bit digital output. Features include binning, auto white balance, full exposure control, programmable gain, sub-windowing and region of interest. Ideal for scientific and medical applications.

**Applications**
- Brightfield
- DIC
- Live Cell Imaging
- Histology
- Pathology
- Cytology
- Defect Analysis
- Semiconductor Inspection
- Metrology
- Gel Documentation

INFINITY2-1C
- 1.4 Megapixel CCD Color Camera

INFINITY2-1M
- 1.4 Megapixel CCD Monochrome Camera

INFINITY2-2C
- 2.0 Megapixel CCD Monochrome Camera

INFINITY2-2M
- 2.0 Megapixel CCD Color Camera

INFINITY2-3C
- 3.3 Megapixel CCD Color Camera

INFINITY2-5C
- 5.0 Megapixel CCD Color Camera

INFINITY2-5M/3M
- 5.0 Megapixel CCD Monochrome Camera

**INFINITY3 Cooled CCD Cameras**

**Highlights**
- 1, 2, 3 and 5 megapixel resolution
- Higher dynamic range for quantitative analysis
- Flat frame rates
- Low noise electronics

For low-light fluorescence applications the INFINITY3 cooled CCD USB 2.0 cameras offer cooling to 25°C below ambient. The Sony ICX890 CID electron HAD sensor has a very high dynamic range, excellent sensitivity and a 12-bit digital output. Features include binning, auto white balance, full exposure control, programmable gain, sub-windowing and region of interest.

**Applications**
- Brightfield
- DIC
- Live Cell Imaging
- Histology
- Pathology
- Cytology
- Defect Analysis
- Semiconductor Inspection
- Metrology
- Gel Documentation

INFINITY3-1C
- 1 Megapixel Cooled Color Camera

INFINITY3-1M
- 1 Megapixel Cooled Monochrome Camera

INFINITY3-2C
- 2 Megapixel Cooled Monochrome Camera

INFINITY3-2M
- 2 Megapixel Cooled Color Camera

INFINITY3-3C
- 3 Megapixel Cooled Color Camera

INFINITY3-5C
- 5 Megapixel Cooled Color Camera

INFINITY3-5M/3M
- 5 Megapixel Cooled Monochrome Camera

**INFINITY4 Large Format CCD Cameras**

**Highlights**
- 1 megapixel resolution
- Large format sensor
- Superior light sensitivity with high fidelity color reproduction
- Low noise electronics
- F-rustless lens adapter

The INFINITY4 camera series offers large format megapixel fixedosaic sensors for a wide field of view. The perfect choice for demanding high resolution imaging requiring excellent color resolution. Features include a 12-bit digital output, binning, progressive scan electronic shutter, full exposure control, auto white balance, programmable gain, sub-windowing and region of interest — ideal for high-end research, clinical and life science applications.

**Applications**
- Brightfield
- DIC
- Live Cell Imaging
- Histology
- Pathology
- Cytology
- Defect Analysis
- Semiconductor Inspection
- Metrology
- Gel Documentation

INFINITY4-3C
- 10.7 Megapixel Cooled Color Camera

INFINITY4-3M
- 10.7 Megapixel Cooled Monochrome Camera

**INFINITY High Resolution CMOS Cameras**

**Highlights**
- 1, 5, 10 and 21 megapixel resolution
- Ideal for archiving and documentation
- Fast frame rates

Sub-pixel shifting technology provides variable resolution capture at 1, 3, 5, 10 and 21 megapixel resolution with precise color and good sensitivity. The INFINITY5 USB 2.0 Camera is an essential tool for clinical, life science and educational professionals where high resolution image archiving and publication quality images are critical. Features include auto white balance, full exposure control, programmable gain, sub-windowing and region of interest.

**Applications**
- High Resolution
- Brightfield
- DIC
- Live Cell Imaging
- Histology
- Pathology
- Cytology
- Defect Analysis
- Semiconductor Inspection
- Metrology

INFINITY5-2C
- 21 Megapixel CMOS Color Camera

INFINITY5-2M
- 21 Megapixel CMOS Monochrome Camera

**Comparing USB 2.0 to FireWire**

Video performance in digital cameras is defined by the maximum frame rate at a given resolution and is measured in frames per second (fps). Both FireWire and high-speed USB 2.0 digital cameras exhibit almost identical frame rates by resolution. These frame rates are usually limited by the sensor read-out rate — the rate at which the image information is transferred from the sensor to the camera. As a result, high-speed USB 2.0 digital cameras are an essential tool for clinical, life science and educational professionals where high resolution image archiving and publication quality images are critical. Features include auto white balance, full exposure control, programmable gain, sub-windowing and region of interest.

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INFINITY1 CMOS Cameras

Highlights
- 1.3 and 5 megapixel resolution
- Perfect for documentation and archiving applications

INFINITY1-1C
- 1.3 Megapixel CMOS Color Camera

INFINITY1-1M
- 1.3 Megapixel CMOS Monochrome Camera

INFINITY1-1SC
- 1.3 Megapixel CMOS Color Camera

INFINITY1-5C
- 5.0 Megapixel CMOS Color Camera

Applications
- Brightfield, Darkfield, DIC, Live Cell Imaging, Histology, Pathology, Cytology, Defect Analysis, Semiconductor Inspection, Metrology

INFINITY2 CMOS Cameras

Highlights
- 2.0, 4.0, and 5.0 megapixel resolution
- Higher dynamic range for quantitative analysis
- Fast frame rates
- Low noise electronics

Equipped with a high-quality, Sony CCD sensor, INFINITY2 CCD USB 2.0 cameras offer excellent sensitivity, high dynamic range and a 12-bit digital output. Features include binning, auto white balance, full exposure control, programmable gain, sub-windowing and region of interest. Ideal for high-speed and scientific applications.

INFINITY2-YC
- 1.4 Megapixel CCD Color Camera

INFINITY2-YM
- 1.4 Megapixel CCD Monochrome Camera

INFINITY2-YSC
- 2.0 Megapixel CCD Monochrome Camera

INFINITY2-YMC
- 3.3 Megapixel CCD Monochrome Camera

Applications
- Brightfield, Darkfield, DIC, Live Cell Imaging, Histology, Pathology, Cytology, Defect Analysis, Semiconductor Inspection, Metrology, Gel Documentation, Medium Light Fluorescence

INFINITY3 Cooled CCD Cameras

INFINITY3 Cooled CCD Cameras are designed to be a cost-effective, versatile solution for a variety of microscopy imaging applications. Features include auto white balance, full exposure control, programmable gain, sub-windowing and region of interest. An excellent fit for documentation and archiving applications.

INFINITY3-1C
- 1.3 Megapixel Cooled CMOS Color Camera

INFINITY3-1M
- 1.3 Megapixel Cooled CMOS Monochrome Camera

INFINITY3-1SC
- 1.3 Megapixel Cooled CMOS Color Camera

INFINITY3-5C
- 5.0 Megapixel Cooled CMOS Color Camera

Applications
- Brightfield, Darkfield, DIC, Live Cell Imaging, Histology, Pathology, Cytology, Defect Analysis, Semiconductor Inspection, Metrology

INFINITY4 Large Format CCD Cameras

INFINITY4 Large Format CCD Cameras offer excellent fit for documentation and archiving applications. Features include auto white balance, full exposure control, programmable gain, sub-windowing and region of interest. Ideal for high-speed and scientific applications.

INFINITY4-1C
- 10.7 Megapixel Cooled CCD Color Camera

INFINITY4-1M
- 10.7 Megapixel Cooled CCD Monochrome Camera

Applications
- Brightfield, Darkfield, DIC, Live Cell Imaging, Histology, Pathology, Cytology, Defect Analysis, Semiconductor Inspection, Metrology, Gel Documentation, Medium Light Fluorescence

INFINITY4 Large Format CMOS Cameras

INFINITY4-2CM
- 21 Megapixel CMOS Color Camera

INFINITY4-2MC
- 21 Megapixel CMOS Monochrome Camera

Applications
- High speed, Brightfield, Darkfield, DIC, Live Cell Imaging, Histology, Pathology, Cytology, Defect Analysis, Semiconductor Inspection, Metrology

INFINITY4 Large Format CMOS Cameras are designed to be a cost-effective, versatile solution for a variety of microscopy imaging applications. Features include auto white balance, full exposure control, programmable gain, sub-windowing and region of interest.

CONNECTION TRANSFER RATE FRAME RATE INSTALLATION

USB 2.0
- 460 MB/s
- NFS on 2.0 system requires 10 GBps
- 1.25 GBps

FireWire
- 400 MB/s
- 10 GBps

USB 2.0 is an ideal interface for scientific cameras, offering high-bandwidth with computers, while providing more than enough throughput for its selected image sensors.
Camera Specifications

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<thead>
<tr>
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<th>Bit Depth</th>
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<th>Region of Interest</th>
<th>Color # (Color/Mono)</th>
<th>Notes</th>
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<td>INF1047</td>
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<td>8 or 10</td>
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- **Camera Control**
  - Stitch small images into large seamless image along vertical or horizontal planes
- **Multi-Focus Enhancement Option**
- **Stitching**
  - Stitch small images into large seamless image along vertical or horizontal planes

> **INFINITY ANALYZE Software**

All Lumenera’s INFINITY cameras include INFINITY ANALYZE software, allowing complete camera control and advanced image acquisition and analysis. Features include:

- **Auto/Manual Exposure**
- **Auto/Manual White Balance**
- **Programmable Gain, 1 to 10X Optimizable**
- **INFINITY 1, 2, 3, 4 — C-Mount Lens Adapter, INFINITY 4 — F-Mount Lens Adapter**
- **USB 2.0-High Speed Interface (USB 480 MB/s vs. Firewire 400 MB/s)**
- **Power: INFINITY 1 & 2 — USB Bus Power**
- **INFINITY 3 — External 5VDC–500mA**
- **INFINITY 4 — External 12VDC–1A**
- **INFINITY X — External 6VDC–500mA**
- **Operating Temperature 0ºC to + 50ºC**
- **Operating Humidity 5% to 95%, Non-condensing**

> **OEM Custom Camera Design**

As an OEM Lumenera customer you can now leverage the success of the INFINITY camera line through our custom camera development.

Our unique options for OEM custom software features and hardware camera design offer the following advantages:

- **Improve Time to Market**
- **Reduce Development Costs**
- **Differentiate from the Competition**

For more information e-mail scientificsales@lumenera.com.

> **INFINITY Camera Specifications**

- **Multi-Focus Enhancement**
- **Auto/Manual White Balance**
- **Programmable Gain, 1 to 10X Optimizable**
- **USB 2.0-High Speed Interface (USB 480 MB/s vs. Firewire 400 MB/s)**
- **Power: INFINITY 4 — F-Mount Lens Adapter**
- **Power: INFINITY 4 — F-Mount Lens Adapter**
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- **INFINITY 7.2 — External 12VDC–1A**
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> **Mac Plug-In for INFINITY Cameras**

- A Mac Plug-In for all INFINITY cameras is now available
- Compatible with Mac OS 10.4 (requires Quick Time V7)
- Visit Lumenera’s web site to download the latest version

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