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Ricoh announces the CX1

7.1x Optical wide-angle zoom digital camera with maximum dynamic range equivalent to 12 EV

Tokyo, Japan, February 19, 2009—Ricoh Co., Ltd. (president and CEO: Shiro Kondo) today announced the development and release of the CX1, a new digital compact camera with a 7.1x optical wide-angle zoom lens (28-200 mm in 35 mm film equivalent focal length). The CX1's expanded dynamic range of 12 EV (exposure value) equivalent makes it possible to capture high-contrast scenes in a way not possible with earlier models.

With new image processing engine Smooth Imaging Engine IV and a new high-speed image processing CMOS sensor installed, the CX1 achieves greater image quality while at the same time expanding dynamic range with its dynamic range double shot mode.

In addition, functions such as multi-pattern auto white balance (sets white balance based on the light sources of segregated areas of the image) and multi-target AF (shoots consecutive images at seven focal distances automatically defined by the camera) enable the new CX1 to create beautiful images giving an almost naked-eye impression.

The CX1 has a large 3.0-inch 920,000-dot VGA monitor and high-speed continuous shooting functions at approximately 4 frames/second that make it even easier to enjoy photography. This is a digital camera that takes the design concept "A tool you will want to use every day" to a new level of perfection.

<Main features of the new CX1>

1. Greater image quality from a new image processing engine and new image sensor.
 - The CX1 has the new image processing engine Smooth Imaging Engine IV and a new high-speed image processing CMOS sensor. In high-sensitivity shooting conditions, these enhancements result in greater resolution than previous models and also reduce noise without compromising color reproduction.
 - The addition of a customized circuit to the image processing engine has made it possible to include a pixel output interpolation algorithm that expands the CX1's dynamic range by up to 1 EV compared to conventional methods. This reduces whiteout in high-contrast situations and recreates the beauty seen by the eye.

2. Dynamic range double shot mode for excellent reproduction of both light and dark areas.
 - The transformation of the image processing engine and the image sensor has enabled the CX1 to do high-speed continuous shooting. This, in turn, has made it possible to create dynamic range double shot mode, which takes high-speed consecutive shots of two still images with different exposures and then records an image that combines the properly exposed portions of each. Expanding the dynamic range up to a maximum equivalent to 12 EV, this mode makes it possible to record images that give an almost naked-eye impression.
 - It is possible to also record a normal image in addition to the expanded-dynamic-range image so you can check the results immediately after shooting.

3. The multi-pattern auto white balance function gives the optimum color reproduction when shooting subjects mixing different color temperatures.
 - For scenes with both shadow and sunlight and scenes mixing flash and natural light (or fluorescent light, etc.) during flash photography, this function can define white balance to fit the light source of each segregated area of the image. This enhances image quality in people-photography situations that were difficult to shoot with the old auto white balance function.

4. High-definition 3.0-inch 920,000-dot VGA monitor.
 - The large, high-resolution LCD monitor has a wide viewing angle and high contrast. The screen has a fluorine coat to prevent soiling, a hard coat to prevent scratches, and an anti-reflection coat to give greater visibility even outdoors in bright sunshine.
 - The optimum fonts are used for high visibility on the VGA monitor, and greater camera operability is achieved with an enhanced setting-screen design easily readable at a glance. There is also an 81-image playback screen display function useful when checking images during playback.
 - Image framing during shooting is now easier as a result of the addition of a shooting information display frame which does not superimpose shooting information over the image

itself.

5. With the multi-target AF function, the camera automatically finds seven focal distances and shoots at each one in succession.
 - The camera automatically decides seven focus points and does high-speed consecutive shooting of seven images while shifting the focus to each point. After shooting, you can select the image with the preferred focus. This function is effective for scenes (such as flowers) where there is a narrow range for a sharp focus.
 - *The consecutively shot images are recorded as a single MP file (a file format with multiple still images in a single file).

6. Enhanced high-speed continuous shooting functions catch the decisive movement of moving subjects.
 - In continuous shooting mode, it is possible to do high-speed continuous shooting at approximately 4 frames/second for still images with the maximum number of pixels.
 - *Continuous shooting speed will vary depending on shooting conditions, card type, card condition, etc.
 - The M-continuous plus shooting function does continuous shooting that saves the 30 images (30 frames/sec.) taken during the one second or so before the finger is removed from the shutter release button or the 30 images (15 frames/sec.) taken during the two seconds before. By taking your finger from the shutter release just after the decisive moment has passed, you can be sure that you caught it.
 - *Image size is fixed at N1728 (2M).
 - *The consecutively shot images are recorded as a single MP file (a file format with multiple still images in a single file).
 - With ultra-high-speed continuous shooting, the CX1 shoots 120 images (120 frames/sec.) during an interval of about one second after the shutter release button is pushed, or 120 images (60 frames/sec.) during an interval of about two seconds.
 - *Image size is fixed at N640 (VGA).
 - *The consecutively shot images are recorded as a single MP file (a file format with multiple still images in a single file).

7. A 7.1x optical zoom lens (equivalent to 28-200 mm focal length for 35 mm cameras) in a body optimized for ease of use as a photographic tool.
 - Ricoh's original double retracting lens system has made it possible to fit a 7.1x optical wide-angle zoom lens in a body that is both easy to carry and easy to operate.
 - This lens can handle a wide range of shooting situations, including powerful telephoto shots as well as wide-angle shooting of both expansive landscapes and interior scenes with limited distance between camera and subject.

8. Popular macro photography functions.

- With the macro photography functions you can get as close to the subject as 1 cm for wide-angle* and 25 cm for telephoto. *Equivalent to 32 mm focal length for 35 mm cameras
- When shooting up close in easy shooting mode, the camera will automatically switch to macro mode so you can enjoy macro photography without the inconvenience of mode switching.

9. A wide range of functions inspired by the "A tool you will want to use every day" concept.

- Electronic level utilizing an acceleration sensor.
- Image sensor shift blur reduction function to reduce hand-motion blurring.
- Face mode that automatically identifies subject faces and optimizes face focus, exposure, and white balance.
- Easy shooting mode for photographic fun with simple operations.
- Minimum shooting distance display function that shows on the monitor the minimum shooting distance, which changes depending on the zoom setting.
- Aspect ratio (vertical/horizontal ratio) 1:1 square format photography function.
- Image flag function to enable the quick display of specific images from among those in the camera.
- The ability to switch from frame to frame with the still image display remaining enlarged in playback mode.

< CX1 Option >

Accessory Name	Model
Rechargeable battery	DB-70
Battery charger	BJ-7
Soft case (black)	SC-90BK
Soft case (brown)	SC-90BN
Neck strap	ST-2
Cable switch	CA-1
AC adapter	AC-4g

*The "dynamic range" of a digital camera is range of light intensity that the camera is able to process.

*The term "MP file" used in this document refers to "Extended MP files" conforming to the "multi-picture format" standardized by the CIPA. (The file extension is MPO.)
With MP file images recorded by the CX1, a selected frame can be extracted and saved as an individual JPEG image within the camera.

CX1 – Major Specifications

No. of Effective Pixels (Camera):

Approximately 9.29 million pixels

Image Sensor:

1/2.3-inch CMOS (total pixels: approx. 10.29 million pixels)

Lens:

Focal length: f=4.95-35.4 mm (equivalent to 28-200 mm for 35 mm film cameras. With Step Zoom set, option of seven fixed lengths: 28 mm, 35 mm, 50 mm, 85 mm, 105 mm, 135 mm, and 200 mm)

F-aperture: F3.3 (Wide) - F5.2 (Telephoto)

Shooting Distance: Normal shooting: Approx. 30 cm - infinity (Wide), approx. 1.0 m - infinity (Telephoto) (from the front of the lens)

Macro: Approx. 1 cm - infinity (Wide), approx. 25 cm - infinity (Telephoto), approx. 1 cm - infinity (Zoom Macro) (from the front of the lens)

Lens Construction: 10 elements in 7 groups (aspheric lens: 4 elements and 5 surfaces)

Zoom Magnification:

Optical: 7.1x zoom (equivalent to 28-200 mm focal length for 35 mm cameras)

Digital: 4.8x up to 34.1x (equivalent to 960 mm) when used with optical zoom

Auto Resize: 5.4x^{*1} up to 38.6x^{*1} (equivalent to 1080 mm) when used with optical zoom

Focus Mode:

Multi AF (contrast AF method) / Spot AF (contrast AF method) / Multi-Target AF / Manual Focus / Fixed Focus (Snap) / Infinity (AF auxiliary light)

Motion Blur Reduction:

Image sensor shift method image stabilizer

Shutter Speed:^{*2}

Still image: 8, 4, 2, 1 - 1/2000 sec. / Movie: 1/30 - 1/2000 sec.

Continuous Shooting:

Continuous shooting speed^{*3}: approx. 4 frames/sec. (F3456, F3:2, F1:1 shooting time; shooting speed after 60 pictures is approx. 3 frames/sec.)

Continuous shooting capacity: 999 pictures

Exposure Control:

Exposure Metering Mode: Multi (256 segments), Center Weighted Light Metering, Spot Metering Exposure Mode: Program AE

Exposure Compensation: Manual Exposure Compensation +/-2.0EV (1/3EV Steps), Auto Bracket Function (-0.5EV, ±0, +0.5EV)

ISO Sensitivity (Standard Output Sensitivity):

AUTO, AUTO-HI, ISO80 / ISO100 / ISO200 / ISO400 / ISO800 / ISO1600

White Balance Mode:

AUTO / Multi-Pattern AUTO / Outdoors / Cloudy / Incandescent / Incandescent 2 / Fluorescent / Manual, White Balance Bracket Function

Flash:

Built-in flash mode: Auto (during low light and when the subject is backlit), Red-eye-Reduction,

Flash On, Slow Synchro, Flash Off

Built-in flash range: Approx. 20 cm - 3.0 m (Wide), approx. 25 cm - 2.0 m (Telephoto) (ISO Auto/ISO 400, from the front of the lens)

Flash compensation: +/-2.0EV (1/3EV Steps)

Monitor:

3.0-inch Transparent LCD (approx. 920,000 dots)

Shooting Mode:

Auto Shooting Mode / Easy Shooting Mode / Dynamic Range Double Shot Mode / Continuous Shooting Modes (Continuous, M-Continuous Plus, Ultra-High-Speed Continuous) / Scene Modes (Portrait / Face / Sports / Night Portrait / Landscape / Nightscape / High Sensitivity / Zoom Macro / Skew Correction / Text) / My Setting Mode / Movie Mode

Picture Quality Mode:^{*4}

F (Fine) / N (Normal)

No. of Pixels Recorded:

Still image/multi-picture: [4:3] 3456x2592, 3072x2304, 2592x1944, 2048x1536, 1728x1296 (M-Cont Plus), 1280x960, 640x480 / [3:2] 3456x2304 / [1:1] 2592x2592

Movie: 640x480, 320x240

Text: 3456x2592, 2048x1536

Recording Media:

SD memory card (32, 64, 128, 256, 512 MB, 1GB, 2GB), SDHC memory card (4GB, 8GB, 16GB, 32GB), Internal memory (approx. 88MB)

Storage Capacity (Pictures/ Time):^{*5} (internal memory 88MB)

Still image/multi-picture: 3456x2592 (F: 24, N: 43) / 3456x2304 (F: 28) / 2592x2592 (F: 33) / 3072x2304 (N: 53) / 2592x1944 (N: 73) / 2048x1536 (N: 109) / 1728x1296 (N: 143)(M-Cont Plus) / 1280x960 (N: 181) / 640x480 (N: 705)

Movie^{*6}: 640x480: 15 frames/sec. (1 min. 42 sec.), 320x240: 15 frames/sec. (4 min. 19 sec.) / 640x480: 30 frames/sec. (51 sec.), 320x240: 30 frames/sec. (2 min. 12 sec.)

Recording File Format:

Still Image: JPEG (Exif ver. 2.21)^{*7}

Multi-picture: CIPA DC-X007-2009 Multi-Picture Format draft compliant

Movie: AVI (Open DML Motion JPEG Format compliant)

Compression method: JPEG Baseline method compliant

Other Major Shooting Functions:

Continuous, Self-Timer (operation time: approx. 10 sec. / approx. 2 sec. / custom self-timer), Interval Timer (Shooting interval: 5 sec. - 1 hour (5 sec. steps)^{*8}, Color Bracket function, Focus Bracket function, Fix Min. Aperture, AE/AF Target Shift, Histogram, Grid Guide, Electronic Level

Other Major Playback Functions:

Grid View, Enlarged Display (maximum 16x), Resize, Level Compensation, White Balance Compensation, Trim, Flag, Slideshow, DPOF Setting

Interface:

USB 2.0 (High-Speed USB) Mini-B, Mass storage compatible^{*9} / AV Out 1.0Vp-p (75Ω)

Video Signal Format:

NTSC, PAL switchable

Power Supply:

Rechargeable Battery: DB-70 x1, AC adapter (AC-4g optional)

Battery Consumption:^{*10}

Based on CIPA Standard: Using the DB-70, approx. 270 pictures (when LCD Dim is on)^{*11}

External Dimensions:

101.5 mm (W) x 58.3 mm (H) x 27.9 mm (D) (excluding projecting parts)

Weight:

Approx. 180 g (excluding battery, SD memory card, strap), Accessories approx. 23 g (battery, strap)

Operating Temperature Range:

0°C-40°C

*1. VGA image size

*2. Shutter speed upper and lower limits vary depending on Shooting Mode and Flash Mode.

*3. Values measured under Ricoh measurement conditions using a Panasonic PRO HIGH SPEED 8GB SDHC memory card. The continuous shooting speed and number of pictures will vary depending on the shooting conditions, the type of recording media used, the condition of the recording media, etc.

*4. The picture quality modes which can be set vary depending on the image size.

*5. Estimated number of still images it is possible to record and estimated amount of movie recording time.

*6. The maximum length for one instance of movie recording is 90 minutes or the file size upper limit of 4GB.

*7. Compatible with DCF and DPOF. DCF is the abbreviation of the JEITA standard "Design rule for Camera File system." (Full compatibility with other devices is not guaranteed.)

*8. With flash off

*9. Mass storage driver is compatible with Windows Me, 2000, XP, Vista, Mac OS9.0-9.2.2, and Mac OSX10.1.2-10.5.5.

*10. Shooting capacity was measured using CIPA-standard parameters. This is only an estimate, and performance may vary according to usage conditions.

*11. When LCD Auto Dim is off: approx. 250 pictures



CX1 (Black)

* Windows is a registered trademark or trademark of Microsoft Corporation in the U.S.A. and other countries.

* Mac OS is a registered trademark of Apple Inc. in the U.S.A. and other countries.