Canon

EOS-1D Mark II N DIGITAL

WHITE PAPER

THE CANON EOS-1D MARK II N CAMERA:

THE NEW PROFESSIONAL STANDARD

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I. OVERVIEW

The Canon EOS-1D Mark II N Digital SLR is both the successor to, and a thorough reconsideration of, the EOS-1D Mark II camera. It preserves the speed, responsiveness, image quality and reliability of the EOS-1D Mark II model while incorporating newly refined features that make the camera easier to use and more precise. The N model inherits the mantle of world's fastest digital SLR, firing at 8.5 fps for up to 48 full-resolution JPEGs in a burst (vs. the same firing rate and a 40 JPEG burst for the 1D Mark II camera). It retains the superb 8.2 megapixel CMOS Sensor of the 1D Mark II camera, with its convenient 1.3x lens conversion factor, and continues to use the DIGIC II Image Processor for outstanding image quality. The EOS-1D Mark II N digital SLR shares with the "1 Series" family its all-metal body and chassis and weather-resistant construction, and its shutter is still durability-tested to 200,000 exposures.

The new 2.5 inch, wide-angle view LCD/TFT screen brings with it larger, easier-to-see text in 15 languages. Picture Style makes image control easier. ISO speed changes, memory card selection and new folder creation have all been simplified. The optional Ec-S screen makes manual focusing easier. More burst frames are now possible and burst speed settings are more flexible. Info display is more complete. Many menus can now be accessed during image recording. Several improvements to magnified view make focus checking easier. Last displayed image view makes image review easier and less stressful. User-settable file names make it easier to identify and index one's work. Automatic noise reduction eliminates uncertainty from low-light photography. Enhanced printing functions will make keeping track of images easier. The result is a superb professional photographic instrument.

The estimated selling price of the new camera, $3,999[1] , is actually $500 less than the initial price of its predecessor. This aggressive pricing makes the EOS-1D Mark II N camera a terrific deal. Photographers upgrading from older or less robust equipment, or from film, will see that the N model is the clear choice in all-around professional performance. The great success of the camera's predecessors is on display at any sporting event where legions of white L Series lenses mark Canon as the overwhelming preference of

1Ds Mark II | **1D Mark II N** | 5D | 20D | Digital Rebel XT

professional sports photographers. The same is true in wedding and fashion photography. Many of these cameras have seen long and hard service and could be replaced if a persuasive opportunity presented itself.

Purchasing managers for news organizations and studio operations will certainly find the combination of value and significant evolutionary improvements an excellent argument for "cycling through" existing 1-Series equipment in service. Further, while the EOS-1D Mark II N camera is easier to use, its complete compatibility with existing Canon lenses, Speedlites and accessories means that its introduction into an equipment pool will not require any sort of re-engineering, avoiding additional expense, complication and nuisance.

Working photographers will feel at home immediately with the EOS-1D Mark II N camera. It has the feel and responsiveness they know and rely on combined with a new ease of use they will appreciate and enjoy. Pros of every stripe will recognize it instantly for what it is: the new professional standard.

[1] Actual selling prices are set by dealers and may vary.

II. SUMMARY OF NEW AND IMPROVED FEATURES

- Larger, 2.5 inch LCD/TFT screen with wide viewing angle
- More burst frames: 22 RAW (from 20), big increase in small JPEG burst
- Improved image processing sequence
- Startup time 0.2 sec (from 0.3 sec)
- Estimated selling price of US $3,999[2] ($500 less than EOS-1D Mark II at introduction)
- New Picture Style settings, easier than Parameters, 6 pre-set, 3 user-defined
- Enhanced recording functions to 2 card slots: split recording CF/SD
- New, simple memory card switching function, CF/SD
- Low-level, physical formatting of SD cards, faster and more secure
- Magnified view from any selected AF point on playback
- Magnified view during Quick Review
- Improved image quality in Magnified view
- Last displayed image is remembered
- More complete info display includes file sizes, monochrome and R/G/B indicators
- Automatic new folder creation
- User-settable file names- first 4 characters
- More settings for Custom Functions and Personal Functions
- New access to menu options during image processing and recording
- Contact sheets, Exif printing info, Face Brightener function, new paper sizes with PictBridge
- New optional Ec-S focusing screen for more accurate manual focusing
- Automatic noise reduction menu option for long exposures
- ISO adjustable while looking in the finder
- Enhanced range of settings for burst frames
- New IEEE1394 locking cap
- Canon logo now with sunken lettering and fill-in paint
- Key features of the EOS-1D Mark II retained
- Complete EOS system compatibility
- Magnesium alloy body and stainless steel chassis create a rugged camera with a solid, high quality, professional feel.
- New software package, included at no extra cost, includes Canon's new Digital Photo Professional, ZoomBrowser EX, ImageBrowser and EOS Capture.
- Accessory Data Verification Kit, DVK-E2, permits verification of original, untampered image data.

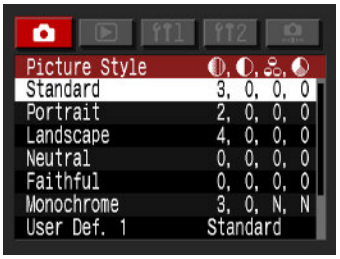
[2] Actual price set by dealers and may vary.

III. DESIGN FEATURES

A. Improved Image Playback Functions

New LCD Screen

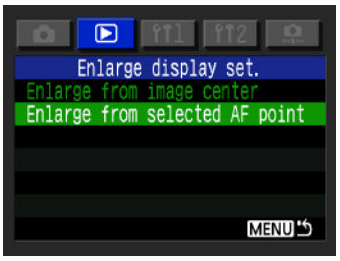
The EOS-1D Mark II N camera has a new, 2.5 inch LCD/ TFT screen with 230,000 pixels. Its area is more than 50% larger than a 2.0 inch screen. Its backlight, with six LED modules, is brighter. Examining photographed images, checking focus and selecting menu items are now all easier. The improved display enables viewing angles up to a remarkable 170 degrees from any direction.



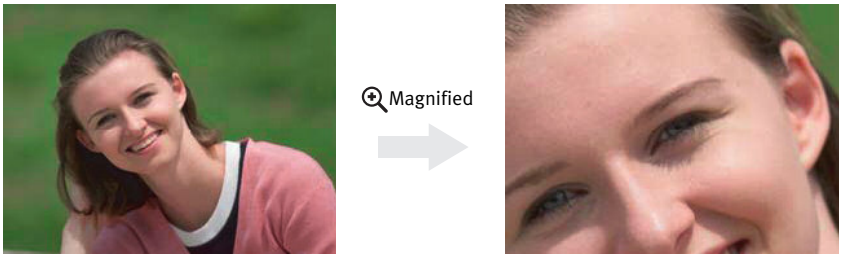
LCD Screen

Magnified View From Any AF Point

Sharing the stage with the new, 2.5 inch LCD wide-angle view display are five significant improvements to image playback. First, one can have magnified view from any selected AF point. Previously, magnified views took the center of the image as the starting point. If the selected AF point was not in the center, one had to scroll around the image, an awkward and time-consuming process. Now, a menu item, [Enlarge from selected AF point], enables the user to magnify the image and check focus in a single operation: the press of one button. Magnification starts at approximately 100% and ranges in 15 steps from 1.5x to 10x, the same as the EOS-1D Mark II camera.



Enlarge display setting screen



Magnified View During Quick Review

Next, magnified view during Quick Review is enabled. This means that, when an image is displayed on the LCD screen immediately after capture, magnified view in 15 steps is now possible, speeding and simplifying focus checking, as well as reducing the time until the next shot can be taken.

1. Quick Review image appears after the shot is taken.

2. Hold down the ‹Magnified› button and press the ‹Magnify› button to magnify the image.

Last Displayed Image Remembered and Improved Magnified Images

Third, increased internal memory capacity has improved image quality in Magnified view. Improved memory function has also made it possible for the EOS-1D Mark II N camera to remember the last displayed image. Previously, when the user resumed image playback after clearing the display by pressing the shutter button or AE lock button, the image shown was the last one shot, a particular inconvenience when checking large numbers of images. Now, when playback is resumed after stopping, the specification has been revised so that the most recently displayed image reappears.

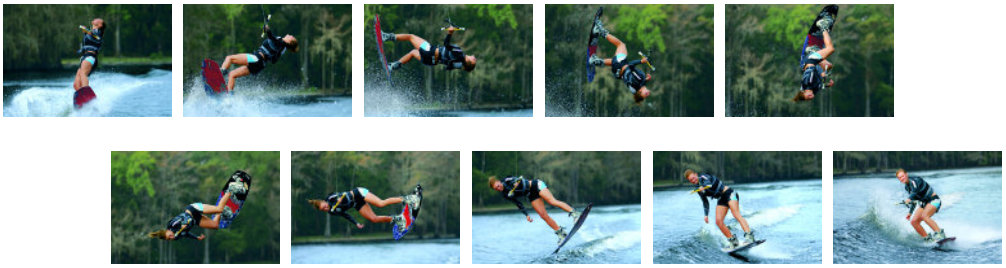
More Complete INFO Display

Last, the information display now shows file sizes and includes notations for monochrome (B/W) and R/G/B when the RGB histogram is enabled. File size has become a critical piece of data with the practical limitations imposed by the widespread adoption of wireless networks (enabled by transmitters such as the Canon WFT-E1A) for image transfer. The indications of monochrome and RGB are an aid to photographers who are fully or partially color blind. Additionally, it is now easier to distinguish between actual monochrome images and those with a limited palette that appear to be monochrome.

B. Improved Image Recording Performance

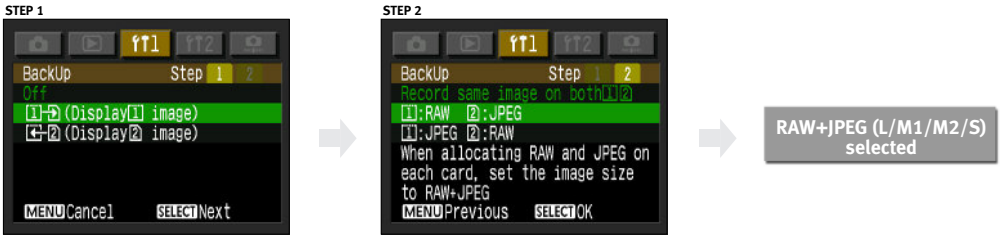
More Burst Frames

An improved image processing sequence and an improved memory management method have made more burst frames possible. The RAW burst is now 22 frames; RAW+JPEG is approximately 19 frames (JPEG quality: 8, Picture Style: Standard, ISO 100); JPEG large is 48 or better; JPEG Medium 1 is 59 or better; JPEG Medium 2 is 77 or better, and JPEG Small has increased substantially to 135 or better. Professional users in particular will appreciate the extra margin of comfort that greater burst performance provides.



New Split Recording for RAW+JPEG

As with the EOS-1D Mark II model, the EOS-1D Mark II N digital SLR allows the user to save the same image simultaneously in both memory cards, slot 1 and slot 2, a highly effective backup mechanism. Also, one can record to slot 1 until it is full, going on to slot 2 as a reserve. Now, with the EOS-1D Mark II N camera in RAW+JPEG mode, it is also possible to save the RAW and JPEG images separately in each memory card. The RAW images can be saved in slot 1 and the JPEGs, in any of ten quality levels, in slot 2, or vice versa. Because CF cards tend to be larger, currently, than SD cards, the RAW files will be likelier to go on the CF card in slot 1, but this is not a requirement. The new option allows images to be recorded separately according to usage, finally realizing a great potential benefit of the dual slot configuration.



Screen for RAW+JPEG images separate recording onto two cards

New Simple Recording Slot Switching

Canon has made a substantial improvement in the way switching between the two card slots is accomplished. On the EOS-1D Mark II, one had to press the Display button and turn the Quick Control Dial to select the folder mode before the card slot selection screen appeared. Holding down the Select memory card button and turning the Quick Control Dial selected the memory card, a less-than-intuitive procedure. The memory card selection button of the EOS-1D Mark II N camera accesses the selection screen directly, a simple and stress-free process.

Automatic New Folder Creation

On the EOS-1D Mark II N digital SLR, when image file number *9999* is reached, a new folder is started automatically and the file number starts from 0001. On current 1D models, a dialog box appears at file number *9999* asking the user whether to create a new folder or not, interrupting shooting and causing a distraction. Also currently, if there is a DCIM folder on the memory card being used, the last file number stored in that folder is rejected. The user must then perform a forced reset in advance to reset the file number to 0001. Now, the user can concentrate on shooting without having to worry about folders or file numbers.

User-settable File Names

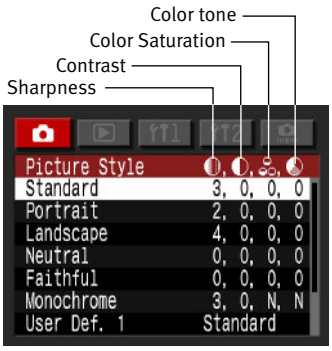
The user can now decide the file name's first four alphanumeric characters followed by the camera's fixed characters. File names are entered on the camera's rear LCD screen using the Quick Control Dial and the Select button. This procedure replaces the current system of unchangeable file names consisting of four random, camera-specific, alpha- numeric characters set at shipment from the factory plus a file number. Now, users can clearly identify themselves as the sender when images are transferred during or immediately after an event. The new system also improves the ease of searching for file names.

Automatic Noise Reduction for Long Exposures

On the menu's Noise reduction screen, a new option called Auto has been added. When Auto is enabled, the camera automatically detects the noise level for exposures one second or longer. If analysis indicates that noise reduction would be effective for that shot, it is applied. At present, it is difficult to judge whether or not an image is affected by noise. Users must compare two images, one with noise reduction enabled and one without it, and make a judgment based on their appearance on the LCD screen, a distinctly iffy proposition.

C. More Functional Improvements

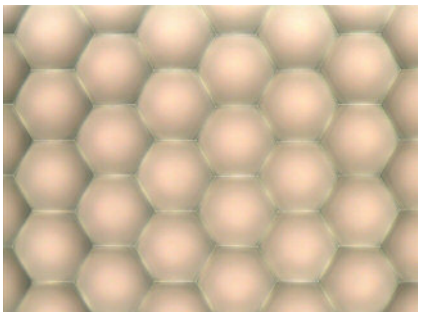
Picture Style



Picture Style screen

The EOS-1D Mark II N digital SLR uses Canon's new Picture Style function for easy control of image characteristics, similar to the way one chose a film to match one's visual intent in the past. Picture Style represents a reorganization of the processing parameters used in previous EOS DSLRs. The six Picture Styles provided are: Standard (standard snapshot characteristics, same as Digital Rebel series Parameter 1), Portrait (softer and more natural skin tones), Landscape (vivid blues and greens, enhanced sharpness), Neutral (natural color reproduction with settings that stress image elements, intended for post-processing, same parameters as the EOS-1D series), Faithful (color reproduction that colorimetrically matches the original as closely as possible, also intended for post-processing) and Monochrome (same as on the EOS 20D camera, and the first time this feature has appeared on an EOS-1 class digital SLR). The first five have adjustable preset settings for Sharpness, Contrast, Color tone and Saturation. Monochrome has adjustable preset settings for Sharpness, Contrast, Filter effect and Toning effect. In addition, there are three user-defined Picture Styles, providing extensive custom control.

New Ec-S Focusing Screen


Magnified photo of screen

For the many professional photographers who prefer to focus manually in certain situations, Canon has devised an optional new focusing screen that uses the precision matte technology first seen on the EOS 20D camera. Optimized for lenses with maximum apertures of f/2.8 and brighter, the Ec-S has a steeper parabola of focus than the standard screen, the New Laser Matte Ec-CIII. The Ec-S's newly shaped microlens causes the defocus bokeh characteristic near the point of focus to be more pronounced. The point of sharpest focus has more snap, making it easier and faster to find. Note that the Ec-S screen is not recommended for use with lenses slower than f/2.8. Also, because the Ec-S screen requires a new setting for C.Fn-00, it is not currently

compatible with existing cameras. Canon is reviewing the possibility of providing a firmware update for earlier EOS-1 class DSLRs.

ISO Set Through Finder

ISO speed and ISO bracketing can now be set while looking through the viewfinder rather than taking one's eye away from the finder to look at the top LCD panel. The risk of missing a photo opportunity is reduced.

Viewfinder

Reduced Startup Time

The improved system processing sequence and revised operations for camera startup have lowered startup time to an almost imperceptible 0.2 sec.

Enhanced Range of Settings for Continuous Shooting Speed

The EOS-1D Mark II N camera offers a choice of high-speed continuous shooting (H) ranging from 2 to 8.5 fps, and low speed continuous shooting (L) with settings from 1 to 7 fps. Access to these controls is through the new P.Fn 19, [Set continuous shooting speed]. There was no overlap in the EOS-1D Mark II's settings; (H) was 4 to 8.5 fps and (L) was 1 to 3 fps. Professional photographers will appreciate both the new level of control and the greater range of (L) settings.

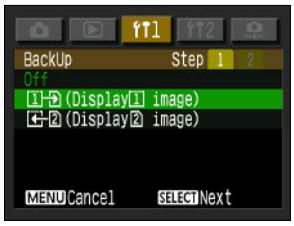
Access to Menu Options During Image Recording

The EOS-1D Mark II N camera offers the highly useful feature of permitting access to certain menu options while the camera is processing images and recording them on a memory card. During shooting, changes in [JPEG quality], [Color space], [Picture Style], [Photographed image review] and ISO expansion can be made, effective with the next shot. During playback, changes to [Highlight alert], [Display AF points], [Histogram display] and [Enlarged display set] will all be effective with the next image displayed. In addition, changes to these settings are applied immediately after being entered: [Auto Power Off] and [Auto rotate] from Setup menu 1, as well as [Language] and [Video system] from Setup menu 2.

New Custom Functions and Personal Function

C.Fn-13 adds [9/Center AF] point to [Number AF points/Spot metering]. This allows spot metering to remain at the center of the image, regardless of the focusing point selected from the nine available choices. C.Fn-00, setting 2 [Ec-S] is added to [Focusing screen] to support the new focusing screen. The new P.Fn-19 is very welcome because it now permits the selection of [High-speed continuous shooting]: 2-8 or [Low-speed continuous shooting]: 1-7. Finally, with P.Fn-25, [Picture Style] and [Color space] have been added to [Default settings when cleared].

Low Level Formatting of SD Cards



Low-level formatting screen

Low level formatting, or physical formatting, rewrites all of the recording media's sector information. Existing data is completely erased. In contrast, high level formatting, or logical formatting, is like erasing only the table of contents of a book. It may be possible in this case to recover data with third party software, an advantage or a disadvantage, depending upon circumstances. The EOS-1D Mark II N camera has the Low Level Format feature already incorporated into Canon PowerShot cameras. When the SD card (Card 2) is selected on the card format screen, a checkbox to enable Low Level Format will appear. (Low Level Formatting is not possible with CF cards, so the checkbox does not appear in this case.) When it is selected, writing to the SD card will be faster and more secure, and permanent deletion of data will be executed.

D. Enhanced PictBridge Functions

New "Contact" Printing

In 2004, primarily as a result of the introduction of the PIXMA brand (PIXUS brand in Japan) in the latter half of the year, unit sales expanded nearly 20% from the previous year. As a result, Canon showed excellent performance for the year, returning to the No. 1 position in the Japanese market for the first time in eight years. Canon has applied advances in its semiconductor production technologies to the nozzle manufacturing process, resulting in substantial improvements in printer performance. Software andhardware innovations are combining to make Canon printers work better than ever. For example, the compatibility of Canon PIXMA photo printers and Canon cameras has been extended so that, beginning with PictBridge compliant models introduced in the fall of 2005, useful new functions will be available. First, there's Contact Printing, featuring easy-to-see thumbnail images, with a simulated 35mm filmstrip background. Each frame measures 36mm x 24mm, exactly the size of contact prints made from 35mm film, in a five-rows-of-seven 35-image layout.

Two New Layouts With Exif Data

The second new option is a 20-image layout with Exif shooting informationprinted next to each frame: camera model, lens model, extender usage, shooting mode, shutter speed, aperture setting, exposure compensation (not shown if no compensation is used), ISO, white balance, file

number and date. Either of these options offers a useful solution to the problem of archiving and retrieving digital images. A third new choice makes a single print with Exif information printed underneath.

Face Brightener

Face Brightener, which makes dark, backlit faces brighter, is an effect that appeared originally in Easy-Photo-Print Ver. 3.0. It is now available, without a computer, in the new series of Canon PIXMA Photo Printers. It provides an easy way to correct for underexposure caused, in most cases, by backlighting of the subject.

Original image

With Face Brightener

New Paper Sizes

Three new paper sizes have been added: 4″ x 8″, 8″ x 10″ and 10″ x 12″. This enhancement is aimed at the growing group of professionals who may need to print directly from their cameras while on location, and is compatible with new paper sizes that are scheduled to be available for Canon PIXMA Photo Printers announced in the second half of 2005.

E. Continuation of the Key Elements of the EOS-1D Mark II

World's Fastest Autofocus Digital Single Lens Reflex Camera

The EOS-1D Mark II N camera has the same "top speed" as the EOS-1D Mark II model. At 8.5 frames per second in One Shot AF/AI SERVO AF mode, it still boasts the world's fastest continuous shooting speed for an AF DSLR.

Superior Sensor

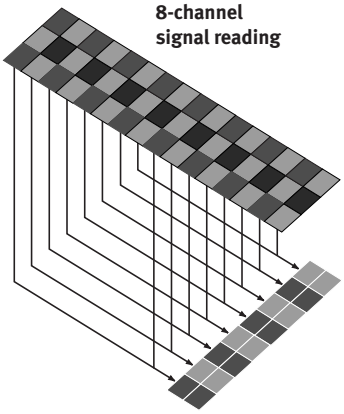
CMOS sensor

The EOS-1D Mark II N digital SLR has the same Canon-designed and -manufactured single-plate CMOS sensor as the EOS-1D Mark II. The sensor measures 28.7mm x 19.1mm, the generous APS-H size, yielding a 1.3x lens conversion factor that is better for wide-angle work than smaller, less costly sensors. Additionally, the large sensor means that each of its 8.2 megapixels (3520 horizontal by 2342 vertical) can be a considerable 8.2µm square. This surface area produces greater

sensitivity to light, higher effective ISOs, better shadow and highlight detail, higher signal output and exceptionally low noise compared to earlier EOS Digital SLRs.

DIGIC II Image Processor

The DIGIC II provides the EOS-1D Mark II N camera with an ultra-fast processing system, in part because of its use of DDR-SDRAM (Double Data Rate Synchronous Dynamic Random Access Memory) and eight- channel simultaneous reading from the sensor. The DIGIC II retains its acclaimed on-chip noise reduction circuit that produces low levels of noise, even at high ISOs, and provides high-precision computing for natural color reproduction, superb color accuracy, wide tonal range, reduced false colors and low power consumption. The DIGIC II combines the functions of the original DIGIC, the camera control module and the image processing module, all on one unit, reducing size, cost and complexity, and increasing performance and reliability.



1-Series Tradition: A Complete Range of Functions

The EOS-1D Mark II N digital SLR shares its heritage with the EOS-1, -1N and –1v film SLRs and the -1D, -1Ds, -1D Mark II and –1Ds Mark II digital SLRs, a noble family of rugged and top-performing professional cameras. Necessarily, it has shutter speeds from 1/8000 to 30 seconds plus Bulb, a maximum X-sync of 1/250 second, ISO speeds from 100 to 1600 in 1/3-step increments (with expansion to ISO 50 or 3200 using menu screens), 100% viewfinder coverage, short startup time (0.2 sec), a shutter release lag time of 55 ms (or 40 ms at full aperture with P.Fn-26 set), active mirror control for a finder blackout time of approximately 87 ms, four JPEG resolution settings, ten JPEG compression settings, RAW and RAW+JPEG simultaneous recording, precise auto white balance, WB correction and WB bracketing, 45-point area AF with metering sensors in 21 zones, high-speed AF and high-speed subject tracking, the E-TTL II advanced flash exposure system, and IEEE1394 (FireWireTM) for faster image transfers to a personal computer.

Compatibility

In addition to accepting the entire array of Canon EF (but not EF-S) lenses and EX-Series Speedlites, the EOS-1D Mark II N digital SLR is completely compatible with all system accessories for the EOS-1D and EOS-1D Mark II cameras (including the DVK-E2 Data Verification Kit, but not the DVK-E1 or the IFC-200D6/450D6 Interface Cables), wireless/ wired LAN image transfers (with WFT-E1/E1A), IPTC (International Press Telecommunication

Council) information tags for JPEG images, Exif 2.21 (especially for color space and printing applications), and formatting capabilities for memory cards up to 2 GB and larger.

Speedlites

EF Lenses

Basic Operation Ease

Like all 1-Series cameras, the EOS-1D Mark II N digital SLR is as comfortable to hold vertically as it is horizontally. It retains the graphical user interface for accessing many functions, always with a priority on shooting. Most of the improvements from the Mark II model to Mark II N model make the new camera even easier to use.

Design

As on the EOS-1D Mark II and the EOS-1Ds Mark II cameras, the Canon logo on the EOS-1D Mark II N camera uses sculpted and color-filled lettering for a look of quality and sophistication. The new screen on the back seems enormous and is unmistakable. On the whole, the 1D Mark II N camera looks like just what it is, a rugged and elegant professional instrument.

Reliability and Durability

In keeping with 1-Series practice, the EOS-1D Mark II N camera uses magnesium alloy with a tough, scratch-resistant coating for the top, front, bottom, sides and rear covers, the memory card slot cover and the chassis. The mirror box is a machined aluminum casting. The shutter is tested for 200,000 cycles, the highest reliability rating for an SLR with a focal plane shutter. Extensive use of gaskets and seals gives the camera thorough dust and water resistance. Noise-resistant electromagnetic shielding and careful

distribution of electronics keeps images noise-free. A new cable protector is bundled with the camera; it prevents movement of the IEEE1394 cable in its socket and the damage that could cause.

Extensive Software Package

The EOS-1D Mark II N camera will be packaged with the EOS Digital Solution Disk, Ver. 11, which includes ZoomBrowser EX 5.5, ImageBrowser 5.5, EOS Capture 1.5 (Windows/Macintosh), PhotoStitch 3.1 (Windows/Macintosh), and a set of PTP, WIA and TWAIN Drivers (Windows). At no extra cost, the camera will also come with Digital Photo Professional, Ver. 2.0, an immensely useful tool for professional digital workflow.

IV. SPECIFICATIONS

Camera Type

Type: Digital AF/AE SLR
Recording Medium: Type I or II CF card, SD memory card
Image Size: 28.7 x 19.1mm
Compatible Lenses: Canon EF lenses (except EF-S lens)
(35mm-equivalent focal length is equal to approx. 1.3 times the marked focal length.)
Lens mount: Canon EF mount

Imaging Element

Type: High-sensitivity, high-resolution, large single-plate CMOS sensor
Effective Pixels: Approx. 8.20 megapixels
Total Pixels: Approx. 8.50 megapixels
Aspect Ratio: 3:2 (Vertical:Horizontal)
Color Filter System: RGB primary color filter
Low-pass Filter: Located in front of the image sensor, non-removable

Recording System

Recording Formats: DCF 2.0 (Exif 2.21): JPEG and RAW
Image Formats: JPEG, RAW (12bit)
RAW+JPEG simultaneous recording: Provided
File size: (1) L (Large): Approx. 3.2MB (3,504 x 2,336 pixels) (2) M1 (Medium1): Approx. 2.6MB (3,104 x 2,072 pixels) (3) M2 (Medium2): Approx. 1.9MB (2,544 x 1,696 pixels) (4) S (Small): Approx. 1.1MB (1,728 x 1,152 pixels) (5) RAW: Approx. 7.9MB (3,504 x 2,336 pixels)* JPEG quality: 8* Exact file sizes depend on the JPEG quality, subject, ISO speed, etc.
Folder setting: Folder creation/selection enabled
File numbering: (1) Consecutive numbering (2) Auto reset (3) Manual reset
Processing parameters/ Color matrix: Incorporated in Picture Style (6 standard + 2 custom)
Backup image recording: Enabled (Same image recordable on CF card and SD memory card can simultaneously record JPEG & RAW split between two cards.
Interfaces: IEEE1394 for personal computers, USB for direct printing, Video output (NTSC/PAL), N3 remote control socket and PC terminal for non-dedicated flash units

White Balance

Settings: Auto, Daylight, Shade, Cloudy, Tungsten light, Fluorescent light, Flash, Color temperature setting, Custom, PC-1 to PC-3 (Total 10 settings)
Auto white balance: Auto white balance with the image sensor
Color temperature compensation: White balance bracketing: ±3 steps in full-step increments; White balance correction: ±9 steps in full-step increments
* Blue/amber bias or magenta/green bias possible

Viewfinder

Type: Eye-level pentaprism
Coverage: Approx. 100 percent vertically and horizontally with respect to the effective pixels
Magnification: 0.72x (-1 diopter with 50mm lens at infinity)
Eyepoint: 20mm
Built-in dioptric adjustment: -3.0 – +1.0 diopter
Focusing screen: Interchangeable (11 types), Standard focusing screen: Ec-CIII
Mirror: Quick-return half mirror (Transmission:reflection ratio of 37:63, no mirror cut-off with EF 1200mm f/5.6 or shorter lens)
Viewfinder information: AF information (AF points, focus confirmation light), exposure information (shutter speed, aperture, manual exposure, spot metering circle, ISO speed, exposure level), flash information (flash ready, FP flash, FE lock, flash exposure level), white balance compensation, JPEG recording, number of remaining shots, memory card information
Depth-of-field preview: Enabled with depth-of-field preview button
Eyepiece shutter: Built-in

Autofocus

Type: TTL-AREA-SIR with a CMOS sensor
AF points: 45 AF points (Area AF)
AF working range: EV 0-18 (at ISO 100 at 68ºF/20ºC)
Focusing modes: One-Shot AF (ONE SHOT), AI Servo AF (AI SERVO), Manual focusing (MF)
AF point selection: Automatic selection, manual selection, home position (switch to registered AF point)
Selected AF point display: Superimposed in viewfinder and indicated on LCD panel
AF-assist beam: Emitted by the dedicated Speedlite

Exposure Control

Metering modes: 21-zone TTL full aperture metering (1) Evaluative metering (linkable to any AF point) (2) Partial metering (approx. 13.5% of screen) (3) Spot metering • Center spot metering (approx. 3.8% of screen) • AF point-linked spot metering • Multi-spot metering (Max. 8 spot metering entries) (4) Center-weighted average metering
Metering range: EV 0-20 (at 68ºF/20ºC with 50mm f/1.4 lens, ISO 100)
Exposure control systems: Program AE (shiftable), shutter-priority AE, aperture priority AE, E-TTL II autoflash, manual, flash metered manual, bulb
ISO speed range : Equivalent to ISO 100-1600.
Can be expanded to ISO 50 and 3200 with menu.
Exposure compensation: AEB: ±3 stops in 1/3-stop increments. Bracketing methods: 1. Shutter speed and aperture 2. ISO speed; Manual: ±3 stops in 1/3-stop or 1/2-stop increments
AE lock: Auto: Applied in One-Shot AF mode with evaluative metering when focus is achieved. Manual: By AE lock button in all metering modes.

Shutter

Type: Electronically-controlled, focal-plane shutter
Shutter speeds: 1/8000 to 30 sec. (1/3-stop increments), bulb, X-sync at 1/250 sec.
Shutter release: Soft-touch electromagnetic release
Self-timer: 10-sec. or 2-sec. delay
Remote control: Remote control with N3 type terminal
Self-Timer: 10-sec. delay
Remote Control: Remote Control with Remote Switch RS-80N3, Timer Remote Controller TC-80N3 or Wireless Controller LC-4

Flash

E-TTL II autoflash with EX-series Speedlite

Drive System

Drive modes: Single, low-speed continuous, high-speed continuous, self-timer
Continuous shooting speed: Low-speed continuous: Approx. 3 shots/sec.; High-speed continuous: Approx. 8.5 shots/sec.
Max. burst: JPEG: Approx. 48 frames (Large, JPEG 8) RAW: Approx. 22 frames; RAW+JPEG: Approx. 19 frames

LCD Monitor

Type: TFT color liquid-crystal monitor
Monitor size: 2.5 in.
Pixels: Approx. 230,000
Coverage: 100% with respect to the effective pixels
Brightness adjustment: Five levels provided
Interface languages: 15

Image Playback

Image display format: Single image, single image (INFO.), 4-image index, 9-image index, magnified zoom (approx. 1.5x - 10x), rotated image
Highlight alert: In the single image and single image (INFO.) formats, any overexposed highlight areas will blink in the image display.

Image Protection and Erase

Protection: Erase protection of one image, all images in a folder, or all images in the memory card can be applied or canceled at one time.
Erase: One image, all images in a folder, or all images in the memory card can be erased (except protected images) at one time.

Sound Recording

Recording method: The voice annotation recorded with the built-in microphone is attached to the image.
File format: WAV
Recording time: Max. 30 sec. per recording

Direct Printing

Compatible printers: CP Direct, Direct Photo, and PictBridge-compatible printers
Printable images: JPEG images (Print ordering enabled with DPOF version 1.1)

Customization

Custom Functions: 21 Custom Functions with 67 settings
Picture Style: 5 adjustable preset modes, 3 custom modes plus monochrome
Personal Functions: 27
Camera settings saving/reading: Possible

Power Source

Battery: One NiMH Pack NP-E3 * AC power can be supplied via the AC adapter and DC coupler.
Shooting Capacity: At 68ºF/20ºC: Approx. 1200
At 32ºF/0ºC: Approx. 800 * The above figures apply when a fully-charged Ni-MH Pack NP-E3 is used.
Battery check: Automatic
Power saving: Provided. Power turns off after 1, 2, 4, 8, 15, or 30 min.
Back-up battery: One CR2025 lithium battery

Dimensions and Weight

Dimensions: 6.1 x 6.2 x 3.1 in./156 (W) x 157.6 (H) x 79.9 (D) mm
Weight: 43.2 oz./ 1,225g (Body only)

Working Conditions

Working temperature range: 32ºF - 113ºF/ 0ºC- 45ºC
Working humidity: 85% or less

- All the specifications above are based on Canon's testing and measuring standards. Shooting capacity specifications comply with CIPA standards.
- The camera's specifications and physical appearance are subject to change without notice.

V. CONCLUSION

The day after the specifications of a new camera are set for production, an idea for some worthwhile change inevitably presents itself. This is because, first of all, development continues on the product itself. Second, once the camera has been sold in any numbers, there is feedback from users that is worthy of consideration. Then, development continues on the entire line of, in this case, DSLRs, and components developed for one application might be just the ticket for another one as well. If, for example, the cost of developing a new screen could be shared among several cameras, each benefits on both sides of the price/performance equation. So, while the EOS-1D Mark II N digital SLR retains the benchmark features that made the EOS-1D Mark II camera such an overwhelming success, there is a great deal about it which is new and significant.

User requests are largely responsible for the separate RAW and JPEG recording, low-level formatting of SD cards, automatic folder creation, user-settable file names, easy switching of recording card slot, ISO setting in the viewfinder display, inclusion of file size in the INFO display, menu operation during image processing and writing, as well as improved settings for both Custom Functions and Personal Functions. The new Ec-S focusing screen was developed to help the many sports and portrait photographers who focus manually.

Advances in computing system logic enable faster startup time, greater burst performance, enhanced magnified view options and the new automatic noise reduction option. Two examples of shared technology are the new, large display and the Picture Style approach to controlling image characteristics.

As a result of these changes, the EOS-1D Mark II N digital SLR is a camera that will be a source of pleasure to owners and users alike, whether or not they are one and the same. Those who pay for the 1D Mark II N camera will appreciate its rugged durability, long product life, system compatibility and under $4,000[3] price range. Professional users will value its great speed and responsiveness, its superb image quality, its rugged durability and system compatibility, coupled with its new ease of operation. For those who pay their own hard-earned money for their equipment and who, then, must make a living with what they've bought, the EOS-1D Mark II N camera makes a perfect argument for itself. It is, clearly, the new professional standard.

[3] Actual prices are set by dealers and may vary.