

Apple Watch Series 2

iPhone 7



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Apple
Watch 2



Original Apple
Watch



Cut to the chase

- **What is it?** The second-generation Apple Watch (Series 2)
- **When is it Available?** Friday, September 16 (release date)
- **What will it cost?**
 - Apple Watch From \$369
 - Apple Watch Nike+ From \$369 - Nike Sport Band
 - Apple Watch Hermès From \$1149 - Additional Sport Band included.
 - Apple Watch Edition From \$1249 -Ceramic case with Sport Band
 - Magnetic Charging Dock included
- Apple Watch Series 2 is identical in size to the original.

All Apple Watch Series 2 - Specs.

Features

- **Built-in GPS** *
- **Water resistant 50 meters** *
- Wi-Fi — (802.11b/g/n - 2.4GHz) **Not 5 GHz**
- Bluetooth 4.0 — collect data from sensors
- Heart rate sensor
- Accelerometer -measuring acceleration
- Gyroscope - maintaining orientation
- Ambient light sensor -adjusting display brightness

Display/Design

- Sapphire crystal (stainless steel /ceramic cases)
Ion-X glass (aluminum cases) *
 - Second-gen OLED Retina display with Force Touch 2× brighter (1000 nits) *
 - Rounded, rectangular body in two sizes (38mm and 42mm)
 - Four built-in sapphire-covered sensors to measure heart rate
 - Array of interchangeable bands
- * = New with Apple Watch 2



Series 2

Ion-X glass
sapphire

Watch Cases
Aluminum.
Ion-X glass



Series 1

Ion-X glass
sapphire

Stainless Steel /
Ceramic.
Sapphire.



48 MM

246mAh

Battery
18
hours



38 MM

205mAh

Apple Watch 1

- Waterproofing Rating
- **IPX7** - will be able to withstand immersion in water up to 1 meter for up to 30 minutes.
- This means that a session during:
 - Exercise
 - In the shower,
 - In the rain,
 - Washing hands **will not cause damage**
- Prolonged exposure, (swimming) would be harmful.
- Example: Many handheld GPS units carry IPX7 ratings.

The IP Code –IPX7

- Known as the International Protection Marking code – is drawn up by the International Electrotechnical Commission (IEC) to determine the dust and water resistance of devices.
- The first digit marks the resistance to dust particles.
 - X = device hasn't been tested and certified.
- The second digit marks the water resistance or proofing of the casing.
 - 7 = can be totally immersed in 1 metre of water for 30 minutes.

Apple Watch Series 2 Facts

- Integrates discrete components like Wi-Fi, Bluetooth, GPS, NFC, touch controller, accelerometers and RAM into a single package.
 - Wi-Fi, Bluetooth – wireless internet, short range wireless connectivity.
 - NFC = Near Field Communications.
 - Touch Controller – Forced Touch, access options by pressing down on screen
- Ceramic Case - four times stronger.
- **Take screenshots**
 - Press the side button while simultaneously pressing the Digital Crown:
 - screenshot will now be located in your iPhone Photos app.
 - Must be connected

Forced Touch

- Enables [touchscreens](#) to distinguish between different levels of force being applied to their surfaces.
- A series of [electrodes](#) line the curvature of the screen.
- When a press is detected, these electrodes determine the pressure applied.
- The feedback is then relayed to the "Taptic Engine", an electromagnetic linear actuator.
- Providing controls in apps like Messages & Music when the user presses firmly on the Watch display.

“taptic engine”

- To deliver physical sensations to your wrist.
 - `a discreet, sophisticated, gentle tap.
- A “gentle tap” on your device can be sent to another Watch wearer, who will feel the touch on their wrist.
 - an new form of human-to-human communications.
- Force Touch and the Digital Crown let users interact seamlessly with onscreen content.

Introducing Series 2

- Built-in GPS.
- Water resistance to 50 meters. (164 feet)
- A new lightning-fast dual-core processor.
 - New SiP Dual Core chip - 50% faster than the original chip.
- A display that's two times brighter than before.
 - Second-generation Organic Light Emitting Device (OLED) Retina display with Force Touch 2× brighter (1000 nits)
 - Retina Display - a marketing term refers to devices that have a resolution and pixel density so high that a person is unable to discern the individual pixels at a normal viewing distance.
- Heart Rate Sensor.
- Comprehensive Workout App.

Built-in GPS

- With built-in GPS, Apple Watch Series 2 can record:
 - Precise distance,
 - Speed,
 - Pace,
- Also hooks up to 'Glonass',
 - (Russian variant of the global positioning satellite system)
- While walking, running, or cycling outdoors.
- It picks up a signal right away, so you don't wait to get moving.
- And when done, check iPhone to see a map of route.

Built-in GPS



Water Resistant

- **Water-resistant chassis allows for swimming.**
- **1mm thicker than previous model, which isn't noticeable.**
- **Constructed with superior 50m water resistance**
 - Suitable for swimmers.
- New seals
- New adhesives
- The speaker, (which needs air to produce sound) is the last point of ingress
 - Specially designed to expel water from itself following moisture exposure.
- Not for scuba diving, waterskiing
 - Activities that involve high-velocity water or deep submersion.
- **Aluminum, stainless steel and ceramic models now available**

Apple Watch **Cautions** – waterproof

- The following may affect the water resistance and should be avoided:
 - Dropping or subjecting it to other impacts.
 - Exposing to soap or soapy water.
 - Exposing to perfume, solvents, detergent, acids / acidic foods, insect repellent, lotions, sunscreen, oil, hair dye.
 - Exposing to high velocity water, (while water skiing.)
 - Wearing Apple Watch in the sauna or steam room.
- Should be cleaned with fresh water & dried with a lint free-cloth if it comes in contact with anything other than fresh water.
- Water resistance isn't a permanent condition:
 - May diminish over time.
 - Apple Watch can't be rechecked or resealed for water resistance.



Using vibrations of the speaker itself to expel water from the speaker cavity. Once workout is paused or finished, turning Digital Crown expels water from the speaker, unlocks the screen, which allows swipe right and end workout, resume workout, or re-lock the display.

Processor

- S2 dual-core processor
 - A customized application processor
 - Memory, storage and support processors for wireless connectivity,
 - GPS,
 - sensors and I/O constitute a complete computer in a single package.
 - This package is filled with resin for durability.
- Faster dual-core processor
- Half a GB of RAM
 - the response isn't instant
 - flipping between apps is great
- New GPU offers twice the graphics performance
 - a specialized electronic circuit designed to rapidly manipulate and alter memory to accelerate the creation of images
- Battery life is much stronger

Launching apps is faster,

Restarting the Apple
Watch is faster,

Doing virtually anything
else is noticeably faster.



Display

- **New brighter screen is easy to read in any conditions**
- a touchscreen that features Force Touch technology
 - a pressure sensitive multi-touch technology
 - touchscreen experiences "erratic" behavior when submerged
- The second-gen OLED Retina display
 - A marked improvement,
 - because it's over 2x brighter at 1000 nits
- A brighter display on the screen when in bright, direct sunlight.

Nits - defined

- The standard unit of luminance used to describe various sources of light.
- A higher rating means a brighter display.
- Displays for laptops & mobile devices
 - between 200 and 300 nits on average.
 - A rating over 300 nits is solid and a rating above 500 nits is extremely good.
 - Televisions - the brightest go above 1,000 nits.



Apple Watch Series 2 - Display



A Watch app gives users more detailed information or functionality.

Your Watch app complements your iPhone app and is meant for quick interactions with your content.

Use your Watch app to display important information and to facilitate interactions with that information.

Heart Rate Monitor

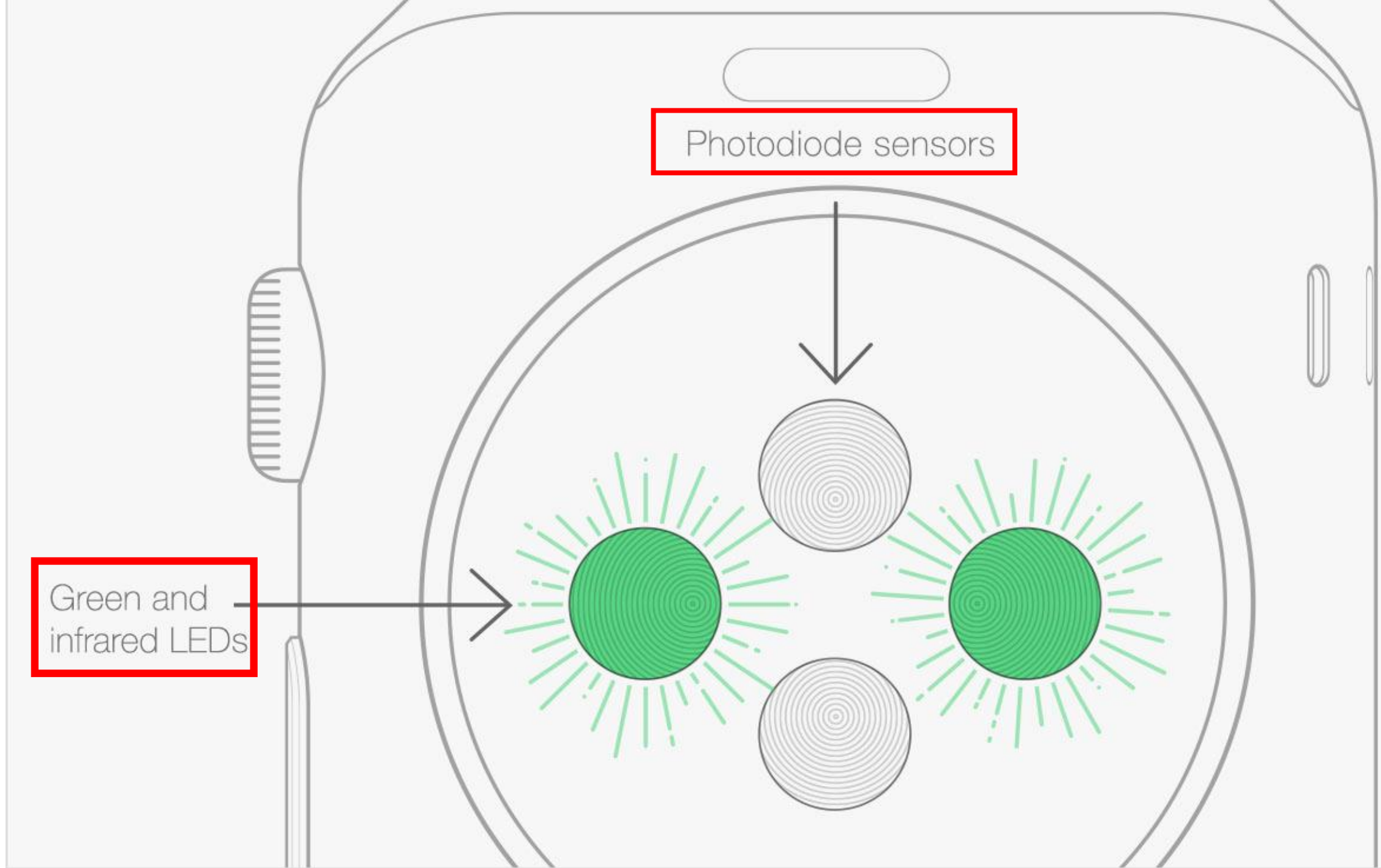
- Uses photoplethysmography technology,
 - Green LED lights
 - Light-sensitive photodiodes
- Detects the amount of blood flowing through your wrist.
 - Issues, when it's been worn by people with dark tattoos on their wrists.
- When using the Workout app:
 - Measures your heart rate continuously during the workout.
 - estimate how many calories you've burned.
- Measures your heart rate throughout the day when you're still.
 - The [Health app](#) on your iPhone.
- [Control which third-party apps have access to your health data from the Health app in Sources.](#)

How Heart Rate Monitor Works

- Blood is red
 - It reflects red light and absorbs green light.
 - Apple Watch uses green LED lights paired with light-sensitive photodiodes to detect the amount of blood flowing through your wrist at any given moment.
- When your heart beats, the blood flow in your wrist — and the green light absorption — is greater.
 - Between beats, it's less.
- By flashing its LED lights hundreds of times per second
 - calculate the number of times the heart beats each minute — your heart rate.
- In addition, the heart rate sensor is designed to compensate for low signal levels by increasing both LED brightness and sampling rate.

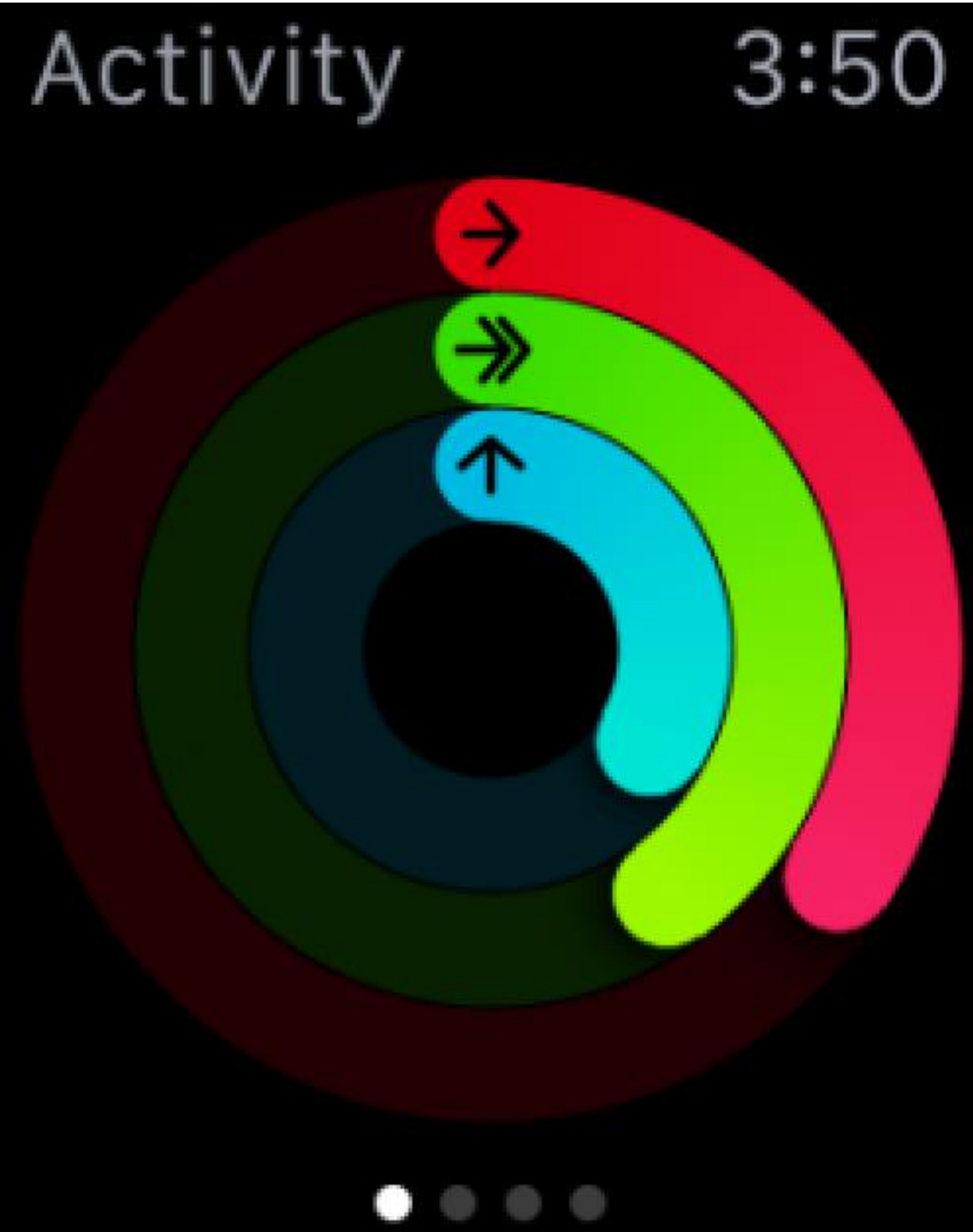
Photodiode sensors

Green and
infrared LEDs



Activity Rings

- The Stand, Move, and Exercise rings show how active.
 - inspire to move a little more.
 - See if you've been sitting too much.
- Track how many steps taken and how many calories burned.
- Aim for 30 minutes of exercise.
 - Even if it's not all at once.



The Move Ring – Red - tracks calories burned by moving.

The Exercise Ring – Green - tracks how many minutes of brisk activity completed in a day.

The Stand Ring – Blue - is there to remind you to move your body, once per hour.

Wheelchair Use - Fitness for all

- The Apple Watch 2 will support wheelchair users, allowing them to track their fitness goals the same as anyone else.
- It takes into account different pushing techniques and terrains to accurately record Activity metrics for wheelchair users.
- And there are two wheelchair-specific workouts to choose from.
- For wheelchair users, **watchOS 3** replaces the Stand ring with a Roll ring.
 - Roll in place for a minute every hour.



Screenshots - Apple Watch 2 Wheelchair

iPhone 7 & 7 Plus





Quick Facts

- No headphone jack
 - Adapters in the box
- Water Resistant - IP67 – 1 meter, 30 minutes.
 - Dust Resistant - No ingress of dust; complete protection against contact following an 8-hour test.
- 2 Speaker Grills – 1 is fake, Stereo = Bottom Grill, earpiece speaker at the top of the phone.

Quick Facts

- Home button = a flat, solid surface.
- Screens are 25 percent brighter
- iOS 10 preloaded
- Camera - iPhone 7 Plus:
 - 2 lenses – 12 MP each
 - 2X to 10X Zoom

Cut to the Chase

- **What is it?** The newest Apple Phone.
- **When is it Available?** Friday, September 16 (depends on Carrier)
- **What will it Cost?**

<u>Model</u>	<u>Storage</u>	<u>USA</u>
• iPhone 7	32 GB	\$649
•	128 GB	\$749
•	256 GB	\$849
• iPhone 7 Plus	32 GB	\$769
•	128 GB	\$869
•	256 GB	\$969

Double the
capacity up to
256GB.

iPhone 7 & 7 Plus Specs

- Two sizes. Five finishes.
 - beautiful black, (matte finish)
 - high-gloss jet black,
 - signature silver,
 - gold,
 - rose gold.
-
- incredibly strong 7000 Series aluminum Case.



Capacity

32GB

128GB

256GB

Jet black is exclusively available in **128GB** and **256GB** models.

Size and Weight

• iPhone 7

- 5.44 inches (138.3 mm) Long;
- 2.64 inches (67.1 mm) Wide;
- 0.28 inch (7.1 mm) Thick;
- Weight: 4.87 ounces
 - (138 grams).

• iPhone 7Plus

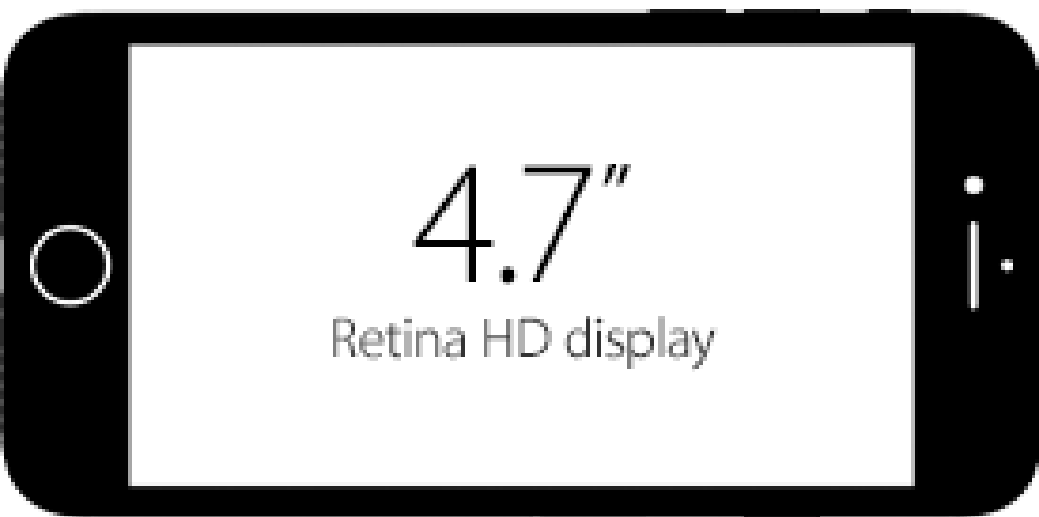
- 6.23 inches (158.2 mm) Long;
- 3.07 inches (77.9 mm) Wide;
- 0.29 inch (7.3 mm) Thick;
- Weight: 6.63 ounces
 - (188 grams).

Display - 7

- Retina HD display
- 4.7-inch LED-backlit widescreen
- Multi-Touch display
- 1334-by-750-pixel resolution at 326 ppi
- 1400:1 contrast ratio

Display - 7 Plus

- Retina HD display
- 5.5-inch LED-backlit widescreen
- Multi-Touch display
- 1920-by-1080-pixel resolution at 401 ppi
- 1300:1 contrast ratio



iPhone 7



iPhone 7 Plus

Both Models Display

- Wide color display - a common color space for digital movie projection
- 625 cd/m² max brightness - organic light-emitting diode (OLED) Brightness rating
- Dual-domain pixels for wide viewing angles - electrodes in the pixels aren't all aligned.
- Fingerprint-resistant oleophobic coating - provides a certain amount of finger smudge resistance

Both Models Display

- Support for multiple languages & characters simultaneously
- Display Zoom - larger displays
- Reachability - a software option- temporarily move user interface down towards the bottom of the screen,
 - smaller hands or single-handed can reach the desired UI element.

Standard
Mode



Zoom
Mode



Display Zoom: Settings > Display & Brightness > Display Zoom.

No Headphone Jack

- Rely on a Lightning converter for your current headphones
- Upgrade to a pair of Bluetooth earbuds
- To make up for the missing headphone jack, two items in the Box:
 - A pair of Lightning-connected (wired) EarPods
 - A Lightning-converter for your 3.5mm headphone plug.
 - Con: cannot charge your phone and listen to music at the same time.
- W1 wireless chip – three Pros
 - Fast and rock-solid pairing
 - The connection ultra-reliable
 - Better Power efficiency

Built to be water/dust resistant

- With its entire enclosure reengineered, The very first water-resistant iPhone. (iP67)
 - against spills, splashes, and even dust.
- Wouldn't get damaged if it submerged under 1 meter water for 30 mins.
- The following may affect the water resistance and should be avoided:

Built to be water/dust resistant

- Dropping or other impacts, exposing to soap or soapy water, Exposing to perfume, solvents, detergent, acids / acidic foods, insect repellent, lotions, sunscreen, oil, hair dye, Exposing to high velocity water, (while water skiing.), using in the sauna or steam room.
- Should be cleaned with fresh water & dried with a lint free-cloth if it comes in contact with anything other than fresh water.
- Water resistance isn't a permanent condition, May diminish over time.
- iPhone can't be rechecked or resealed for water resistance.

Home button

“Flat”

- An advanced solid-state button designed to be:
 - durable, responsive, and pressure sensitive.
- **Touch ID**
 - Using a highly advanced fingerprint sensor that's as fast as ever, makes unlocking your iPhone easy and secure.
- **Apple Pay**
 - Pay instantly and securely in stores, in apps, and on the web.
 - Credit Card details are never shared by Apple with merchants or stored on your device.
 - Using Apple Pay is the safer way to pay.



Flat Home Button

3D Touch

- Responds with subtle taps.
- Retina HD display integrates 3D Touch throughout iOS.
- Interact with Messages, Calendar, Mail, and other apps.

3D Touch

- Fully touch-sensitive capacitive home button.
 - Sensing a press only when the Touch ID scanner is activated
 - Responds with a vibration when pressed.
 - Reducing gaps for water and particles to get in the chassis.
 - Any material in between the finger & button, makes home button useless.
 - Any pressure, no matter how hard, that does not activate the fingerprint scanner is not registered as a click.
- Settings allows you to add a button on the homescreen.
 - Go to: Settings > General > Accessibility
 - Turn Assistive Touch **ON**.

Camera

- 12 mega Pixels - shoot in RAW format.
- Adding optical image stabilization
- A six-element lens - (better low light)
- Wide color capture

Camera

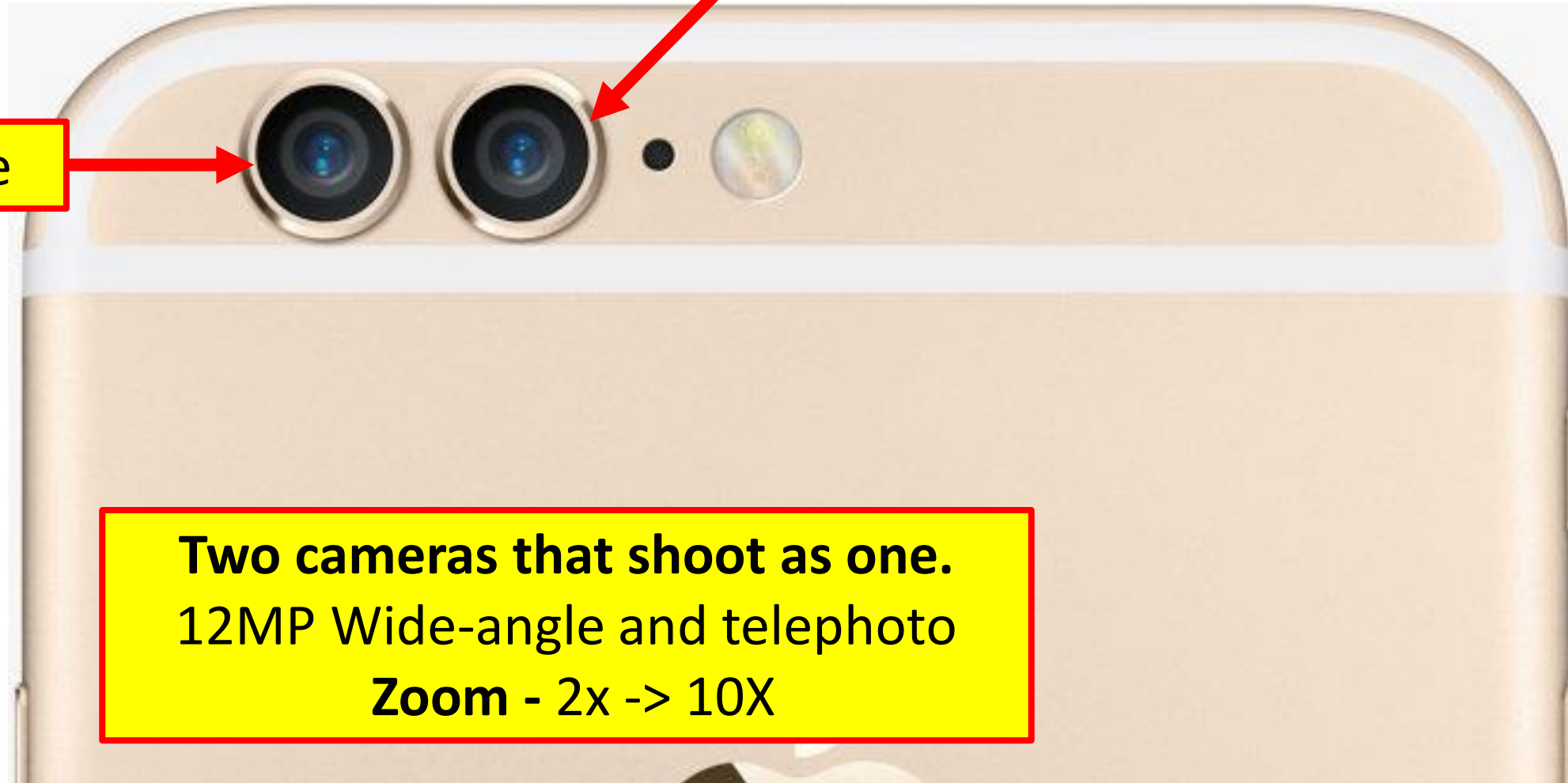
- Quad-LED True Tone flash - four LEDs
 - (50 percent brighter than iPhone 6s.)
- Flicker sensor adds artificial light
- Brighter images in low-light scenarios.
- 4K video, Slo-mo video, Time-lapse video,
- 7MP front-facing camera,
- image signal processor built into the A10 Fusion chip

iPhone 7 Plus
Only

56mm-telephoto lens

Wide Angle

Two cameras that shoot as one.
12MP Wide-angle and telephoto
Zoom - 2x -> 10X






iPhone 7 and 7 Plus

The image shows the internal camera assembly of an iPhone 7 or 7 Plus. A large, circular lens is visible, with a blue-tinted glass element in the center. The assembly is mounted on a gold-colored circuit board. A red arrow points from the text 'Quad LED True Tone Flash' to the flash component on the right.

Quad LED
True Tone
Flash



The image shows the Quad LED True Tone Flash component. It is a circular, metallic-looking structure with four distinct, concentric circular patterns arranged in a square. A red arrow points from the text 'Quad LED True Tone Flash' to this component.

More Processing Power

- Most powerful processor ever — the A10 Fusion.
 - A 64-bit quad-core processor
 - 40 percent faster than the A9
 - 120 times faster than the original iPhone.
- First two cores are for high-performance actions
- The remaining two are high-efficiency ones
 - A performance controller determines which cores are used.
- Graphics — it's 50 percent faster than the A9.

Sim Card – Nano Size

- A removable smart card for mobile phones
- Store the required information to identify the mobile device
- Contains data required for voice encryption
 - To make listening in on calls almost impossible
 - Except the wireless carrier itself

Sim Card – Nano Size

- Store customer ID/ personal phone number
 - Not to a certain mobile phone
- Storage for SMS messages – up to 50 SMS text messages – Short Message Service
- User's contacts - up to 250 name/number pairs
- Cannot store multiple numbers per contact

- Comments or Questions
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