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Xiaomi Black Shark 2 Pro - Specifications

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Dimensions: 75.01 x 163.61 x 8.77 mm
Weight: 205 g
SoC: Qualcomm Snapdragon 855 Plus
CPU: 1x 2.96 GHz Kryo 485, 3x 2.42 GHz Kryo 485, 4x 1.8 GHz Kryo 485
GPU: Qualcomm Adreno 640, 675 MHz
RAM: 12 GB, 2133 MHz
Storage: 128 GB, 256 GB
Display: 6.39 in, Super AMOLED, 1080 x 2340 pixels, 24 bit
Battery: 4000 mAh, Li-Polymer
OS: Android 9.0 Pie
Camera: 8000 x 6000 pixels, 3840 x 2160 pixels, 30 fps
SIM card: Nano-SIM
Wi-Fi: a, b, g, n, n 5GHz, ac, Dual band, Wi-Fi Hotspot, Wi-Fi Direct, Wi-Fi Display
USB: 2.0, USB Type-C
Bluetooth: 5.0
Positioning: GPS, A-GPS, GLONASS, BeiDou, Galileo

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eSIM Provisioning - for M2M and Consume

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Brand and model
Information about the brand, model and model alias (if any) of a specific device.

Brand Brand name of the company that manufactures the device.	Xiaomi
Model Model name of the device.	Black Shark 2 Pro
Model alias Alternative names, under which the model is known.	Black Shark 2Pro

Design
Information about the dimensions and weight of the device, shown in different measurement units. Body materials, available colors, certifications.

Width Information about the width, i.e. the horizontal side of the device when it is used in its standard orientation.	75.01 mm (millimeters) 7.5 cm (centimeters) 0.25 ft (feet) 2.95 in (inches)
Height Information about the height, i.e. the vertical side of the device when it is used in its standard orientation.	163.61 mm (millimeters) 16.36 cm (centimeters) 0.54 ft (feet) 6.44 in (inches)
Thickness	8.77 mm (millimeters) 0.88 cm (centimeters)

Information about the thickness/depth of the device in different measurement units.	0.03 ft (feet) 0.35 in (inches)
Weight Information about the weight of the device in different measurement units.	205 g (grams) 0.45 lbs (pounds) 7.23 oz (ounces)
Volume Estimated volume of the device, calculated from the dimensions provided by the manufacturer. Applies for devices in the form of a rectangular parallelepiped.	107.63 cm³ (cubic centimeters) 6.54 in³ (cubic inches)
Colors Information about the colors, in which the device is available in the market.	Black Silver Green Orange Purple Blue Gold
Body materials Materials used in the fabrication of the device's body.	Aluminium alloy

SIM card

The Subscriber Identity Module (SIM) is used in mobile devices for storing data authenticating the subscribers of mobile services.

SIM card type Information about the type and size (form factor) of the SIM card used in the device.	Nano-SIM (4FF - fourth form factor, since 2012, 12.30 x 8.80 x 0.67 mm)
Number of SIM cards Information about the number of SIM cards, supported by the device.	2
Features Information about some specific features related to the SIM card(s) of the device.	Dual SIM stand-by (Both cards are active. When one is busy, the other is not active)

Networks

A mobile (cellular) network is a radio system, which allows a large number of mobile devices to communicate with each other.

GSM GSM (Global System for Mobile Communications) was developed to replace the analog cellular network (1G), therefore it is referred to as a 2G mobile network. It has been improved with the addition of General Packet Radio Services (GPRS) and later via the Enhanced Data rates for GSM Evolution (EDGE) technology.	GSM 850 MHz GSM 900 MHz GSM 1800 MHz GSM 1900 MHz
CDMA CDMA (Code-Division Multiple Access) is a channel access method for communications within mobile networks. Compared to other 2G and 2.5G standards like GSM and TDMA, it provides increased data transfer speeds and allows more subscribers to connect simultaneously to the network.	CDMA 800 MHz
W-CDMA W-CDMA (Wideband Code Division Multiple Access) is an air interface used by 3G mobile networks. It is one of the three different UMTS interfaces together with the TD-SCDMA and the TD-CDMA. The standard provides faster data transfer speeds and allows more users to connect to the network simultaneously.	W-CDMA 850 MHz W-CDMA 900 MHz W-CDMA 1700 MHz W-CDMA 1900 MHz W-CDMA 2100 MHz
TD-SCDMA TD-SCDMA (Time Division Synchronous Code Division Multiple Access) is a 3G standard for mobile networks. It is developed as an alternative to the W-CDMA standard in China by the Chinese Academy of Telecomunications Technology, Datang Telecom and Siemens AG, and combines TDMA and CDMA.	TD-SCDMA 1900 MHz TD-SCDMA 2000 MHz
LTE LTE is deemed to be the fourth generation (4G) of mobile communications technology. It has been developed by the 3GPP based on the GSM/EDGE and UMTS/HSPA technologies in order to increase the speed and capacity	LTE-TDD 1900 MHz (B39) LTE-TDD 2000 MHz (B34) LTE-TDD 2300 MHz (B40) LTE-TDD 2500 MHz (B41) LTE-TDD 2600 MHz (B38) LTE 700 MHz Class 17

LTE 800 MHz
LTE 850 MHz
LTE 900 MHz
LTE 1700/2100 MHz
LTE 1800 MHz
LTE 1900 MHz
LTE 2100 MHz
LTE 2600 MHz

Mobile network technologies and bandwidth

Communication between devices within mobile networks is realized via various generations of network technologies, which provide different bandwidth.

Mobile network technologies

There are several network technologies that enhance the performance of mobile networks mainly by increased data bandwidth. Information about the communication technologies supported by the device and their respective uplink and downlink bandwidth.

UMTS (384 kbit/s   )
EDGE
GPRS
HSPA+
LTE
EV-DO Rev. A (1.8 Mbit/s   , 3.1 Mbit/s   )
TD-SCDMA
TD-HSDPA

Operating system

Operating system is the system software, which manages and controls the functioning of the hardware components of the device.

Operating system (OS)

Information about the operating system used by the device as well as its version.

Android 9.0 Pie

System on Chip (SoC)

A system on a chip (SoC) includes into a single chip some of the main hardware components of the mobile device.

SoC

The SoC integrates different hardware components such as the CPU, GPU, memory, peripherals, interfaces, etc., as well as software for their functioning.

Qualcomm Snapdragon 855 Plus

Process technology

Information about the process technology used in manufacturing the chip. The value in nanometers represents half the distance between elements that make up the CPU.

7 nm (nanometers)

CPU

CPU is the Central Processing Unit or the processor of a mobile device. Its main function is to interpret and execute instructions contained in software applications.

1x 2.96 GHz Kryo 485, 3x 2.42 GHz Kryo 485, 4x 1.8 GHz Kryo 485

CPU bits

The CPU bits are determined by the bit-size of the processor registers, address buses and data buses. 64-bit CPUs provide better performance than 32-bit ones, which on their part perform better than 16-bit processors.

64 bit

Instruction set

The instruction set architecture (ISA) is a set of commands used by the software to manage the CPU's work. Information about the set of instructions the processor can execute.

ARMv8-A

CPU cores

A CPU core is the processor unit, which executes software instructions. Presently, besides single-core processors, there are dual-core, quad-core, hexa-core and so on multi-core processors. They increase the performance of the device allowing the execution of multiple instructions in parallel.

8

CPU frequency The frequency of the processor describes its clock rate in cycles per second. It is measured in Megahertz (MHz) or Gigahertz (GHz).	2960 MHz (megahertz)
GPU GPU is a graphical processing unit, which handles computation for 2D/3D graphics applications. In mobile devices GPU is usually utilized by games, UI, video playback, etc. GPU can also perform computation in applications traditionally handled by the CPU.	Qualcomm Adreno 640
GPU frequency The frequency is the clock rate of the graphic processor (GPU), which is measured in Megahertz (MHz) or Gigahertz (GHz).	675 MHz (megahertz)
RAM capacity RAM (Random-Access Memory) is used by the operating system and all installed applications. Data in the RAM is lost after the device is turned off or restarted.	12 GB (gigabytes)
RAM type Information about the type of RAM used by the device.	LPDDR4X
RAM channels Information about the number of RAM channels integrated in the SoC. More channels mean higher data transfer rates.	Double channel
RAM frequency RAM frequency relates directly to the rate of reading/writing from/in the RAM memory.	2133 MHz (megahertz)
	Liquid Cool 3.0 vapor chamber system

Storage
Every mobile device has a built-in storage (internal memory) with a fixed capacity.

Storage Information about the capacity of the built-in storage of the device. Sometimes one and the same model may is offered in variants with different internal storage capacity.	128 GB (gigabytes) 256 GB (gigabytes)
	UFS 3.0

Display
The display of a mobile device is characterized by its technology, resolution, pixel density, diagonal length, color depth, etc.

Type/technology One of the main characteristics of the display is its type/technology, on which depends its performance.	Super AMOLED
Diagonal size In mobile devices display size is represented by the length of its diagonal measured in inches.	6.39 in (inches) 162.31 mm (millimeters) 16.23 cm (centimeters)
Width Approximate width of the display	2.68 in (inches) 68.02 mm (millimeters) 6.8 cm (centimeters)
Height Approximate height of the display	5.8 in (inches) 147.37 mm (millimeters) 14.74 cm (centimeters)
Aspect ratio The ratio between the long and the short side of the display	2.167:1
Resolution The display resolution shows the number of pixels on the horizontal and vertical side of the screen. The higher the resolution is, the greater the detail of the displayed content.	1080 x 2340 pixels
Pixel density Information about the number of pixels per centimeter (ppcm) or per inch (ppi) of the display. The higher the pixel	403 ppi (pixels per inch) 158 ppcm (pixels per centimeter)

density, the more detailed and clearer is the information displayed on the screen.	
Color depth The color depth of the display is also known as bit depth. It shows the number of bits used for the color components of one pixel. Information about the maximum number of colors the screen can display.	24 bit 16777216 colors
Display area The estimated percentage of the screen area from the device's front area.	81.94 % (percent)
Other features Information about other functions and features of the display.	Capacitive Multi-touch Scratch resistant
	Display manufacturer - Samsung Corning Gorilla Glass 6 2.5D curved glass screen Always-On Display Magic Press stereo control 60000:1 contrast ratio 430 cd/m² Peak brightness - 600 cd/m² 108.9% NTSC Touch registration rate - 240 Hz Input latency - 43.5 ms HDR10

Sensors

Different sensors measure different physical quantities and convert them into signals recognizable by the mobile device.

Sensors Sensors vary in type and purpose. They increase the overall functionality of the device, in which they are integrated.	Proximity Light Accelerometer Compass Gyroscope Barometer Fingerprint Hall
	In-display optical fingerprint sensor Step detector Step counter

Primary camera

The primary camera of the mobile device is usually placed at its back and is used for taking photos and recording videos.

Sensor model Information about the manufacturer and the model of the image sensor used by the camera of the device.	Sony IMX586 Exmor RS
Sensor type Digital cameras use image sensors for taking photos. The sensor characteristics are some of the main factors determining the quality of the camera integrated in the mobile device.	CMOS BSI (backside illumination)
ISO ISO rating indicates the light sensitivity of the image sensor. The lower the number, the less sensitive to light the image sensor is and vice versa - higher ISO ratings indicate higher sensitivity and ability of the image sensor to work better in low light conditions.	100 - 3200
Aperture Aperture (f-stop number) indicates the size of the lens diaphragm opening, which controls the amount of light reaching the image sensor. The lower the f-stop number, the larger the diaphragm opening is.	f/1.75
Flash type Cameras of mobile devices use mainly a LED or a Xenon flash. The LED flash has a softer burst of light and in contrast to the much brighter Xenon flash, is used for recording videos as well.	Dual LED
Image resolution	8000 x 6000 pixels 48 MP (megapixels)

One of the main characteristics of the cameras of mobile devices is their resolution, which shows the number of pixels on the horizontal and vertical dimensions of the image.	
Video resolution Information about the maximum resolution available for shooting a video with the device.	3840 x 2160 pixels 8.29 MP (megapixels)
Video FPS Information about the maximum number of frames per second (fps), supported by the device while recording a video at maximum resolution. Some of the main standard frame rates for recording and playing video are 24p, 25p, 30p, 60p.	30 fps (frames per second)
Features Information about additional software and hardware features of the privamery camera, which improve its overall performance.	Autofocus Continuous shooting Digital zoom Optical zoom Digital image stabilization Geotagging Panorama HDR Touch focus Face detection White balance settings ISO settings Exposure compensation Self-timer Scene mode Macro mode RAW
	Sensor size - 1/2" Pixel size - 1.6 µm (4-in-1 pixel binning) Phase detection Sapphire crystal glass lens cover 6-element lens Focal length (35 mm equivalent) - 28 mm 1080p @ 120 fps 720p @ 1920 fps Secondary rear camera - 12 MP (telephoto) Sensor model - Samsung S5K3M5 (#2) Sensor type - ISOCELL (#2) Sensor size - 1/3.4" (#2) Pixel size - 1.0 µm (#2) Aperture size - f/2.2 (#2) 6-element lens (#2) Focal length (35 mm equivalent) - 51 mm (#2)

Secondary camera

Secondary cameras are placed above the screen of the device and are usually used for video calls, gesture recognition, etc.

Aperture Aperture (f-stop number) indicates the size of the lens diaphragm opening, which controls the amount of light reaching the image sensor. The lower the f-stop number, the larger the diaphragm opening is.	f/2
Image resolution Information about the maximum image resolution of the secondary camera. Often, the resolution of the secondary camera is lower than the one of the primary camera.	5184 x 3880 pixels 20.11 MP (megapixels)
Video resolution Information about the maximum resolution available for shooting a video by the secondary camera.	1920 x 1080 pixels 2.07 MP (megapixels)
Video FPS Information about the maximum number of frames per second (fps), supported by the secondary camera while recording a video at maximum resolution.	30 fps (frames per second)
	Pixel size - 0.9 µm 5-element lens Focal length (35 mm equivalent) - 20 mm

Audio

Information about the type of speakers and the audio technologies supported by the device.

Speaker The loudspeaker is a device, which reproduces various sounds such as ring tones, alarms, music, voice calls, etc. Information about the type of speakers the device uses.	Loudspeaker Earpiece Stereo speakers
	Headphone adapter

Radio

The radio in a mobile device is a built-in FM radio receiver.

Radio Information whether the device has an FM radio receiver or not.	No

Tracking/Positioning

Information about the positioning and navigation technologies supported by the device.

Tracking/Positioning The tracking/positioning service is provided by various satellite navigation systems, which track the autonomous geo-spatial positioning of the device that supports them. The most common satellite navigation systems are the GPS and the GLONASS. There are also non-satellite technologies for locating mobile devices such as the Enhanced Observed Time Difference, Enhanced 911, GSM Cell ID.	GPS A-GPS GLONASS BeiDou Galileo

Wi-Fi

Wi-Fi is a technology that provides wireless data connections between various devices within a short range.

Wi-Fi Wi-Fi communication between devices is realized via the IEEE 802.11 standards. Some devices have the possibility to serve as Wi-Fi Hotspots by providing internet access for other nearby devices. Wi-Fi Direct (Wi-Fi P2P) is another useful standard that allows devices to communicate with each other without the need for wireless access point (WAP).	802.11a (IEEE 802.11a-1999) 802.11b (IEEE 802.11b-1999) 802.11g (IEEE 802.11g-2003) 802.11n (IEEE 802.11n-2009) 802.11n 5GHz 802.11ac (IEEE 802.11ac) Dual band Wi-Fi Hotspot Wi-Fi Direct Wi-Fi Display
	2x2 MiMO

Bluetooth

Bluetooth is a standard for secure wireless data transfer between different types of devices over short distances.

Version The technology has several versions, which improve the connection speed, range, connectivity and discoverability of the devices. Information about the Bluetooth version of the device.	5.0
Features Bluetooth uses various profiles and protocols related to faster exchange of data, energy saving, better device discoverability, etc. Some of those supported by the device are listed here.	A2DP (Advanced Audio Distribution Profile) LE (Low Energy)

USB

The Universal Serial Bus (USB) is an industry standard that allows different electronic devices to exchange data.

Connector type There are several USB connector types: the Standard one, the Mini and Micro connectors, On-The-Go connectors, etc. Type of the USB connector used by the device.	USB Type-C
Version There are several versions of the Universal Serial Bus (USB) standard: USB 1.0 (1996), the USB 2.0 (2000), the	2.0

USB 3.0 (2008), etc. With each following version the rate
of data transfer is increased.

Features	
The USB interface in mobile devices may be used for different purposes such as battery charging, using the device as a mass storage, host, etc.	Charging Host Mass storage On-The-Go

Headphone jack

The headphone jack is an audio phone connector, a.k.a. an audio jack. The most widely used one in mobile devices is the 3.5 mm headphone jack.

Headphone jack	
Information whether the device is equipped with a 3.5 mm audio jack.	No

Connectivity

Information about other important connectivity technologies supported by the devices.

Connectivity	
Information about some of the most widely used connectivity technologies supported by the device.	Computer sync OTA sync Tethering DLNA VoLTE

Browser

A web browser is a software application for accessing, fetching, displaying and navigating through information on the World Wide Web.

Browser	
Information about some of the features and standards supported by the browser of the device.	HTML HTML5 CSS 3

Audio file formats/codecs

Mobile devices support various audio file formats and codecs, which respectively store and code/decode digital audio data.

Audio file formats/codecs	
List of some of the most common audio file formats and codecs supported standardly by the device.	AAC (Advanced Audio Coding) AAC+ / aacPlus / HE-AAC v1 AMR / AMR-NB / GSM-AMR (Adaptive Multi-Rate, .amr, .3ga) AMR-WB (Adaptive Multi-Rate Wideband, .awb) aptX / apt-X aptX HD / apt-X HD / aptX Lossless eAAC+ / aacPlus v2 / HE-AAC v2 FLAC (Free Lossless Audio Codec, .flac) MIDI MP3 (MPEG-2 Audio Layer II, .mp3) OGG (.ogg, .ogv, .oga, .ogx, .spx, .opus) WMA (Windows Media Audio, .wma) WAV (Waveform Audio File Format, .wav, .wave) LDAC

Video file formats/codecs

Mobile devices support various video file formats and codecs, which respectively store and code/decode digital video data.

Video file formats/codecs	
List of some of the most common video file formats and codecs supported standardly by the device.	3GPP (3rd Generation Partnership Project, .3gp) AVI (Audio Video Interleaved, .avi) DivX (.avi, .divx, .mkv) H.263 H.264 / MPEG-4 Part 10 / AVC video H.265 / MPEG-H Part 2 / HEVC MKV (Matroska Multimedia Container, .mkv .mk3d .mka .mks) MP4 (MPEG-4 Part 14, .mp4, .m4a, .m4p, .m4b, .m4r, .m4v) VC-1 Xvid

Battery

The batteries of mobile devices differ in capacity and technology. They provide the electrical charge needed for the functioning of the devices.

4000 mAh (milliampere-hours)

Capacity The capacity of a battery shows the maximum charge, which it can store, measured in mili-Ampere hours.	
Type The battery type is determined by its structure and more specifically, by the chemicals used in it. There are different battery types and some of the most commonly used in mobile devices are the lithium-ion (Li-Ion) and the lithium-ion polymer battery (Li-Polymer).	Li-Polymer
Charger output power Information about the electric current (amperes) and voltage (volts) the charger outputs. The higher power output allows faster charging.	5 V (volts) / 3 A (amps) 9 V (volts) / 3 A (amps) 12 V (volts) / 2.25 A (amps) 20 V (volts) / 1.35 A (amps)
Quick charge technology Quick charge technologies differ in energy efficiency, power output, control over charging, temperatures, etc. The device, battery and charger must support one and the same charging technology to achieve faster charging times.	Qualcomm Quick Charge 4+
Features Information about some additional features of the device's battery.	Fast charging Non-removable

Most recent comparisons including Xiaomi Black Shark 2 Pro

List of the latest comparisons made by the website visitors, which include Xiaomi Black Shark 2 Pro

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