

# SONY®

## White paper

January 2014



## Xperia™ T2 Ultra XM50h

Note: Screen images are simulated.

# Purpose of this document

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Sony product White papers are intended to give an overview of a product and provide details in relevant areas of technology.

# Document history

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## Version

January 2014	First released version	Version 1
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# Sony Mobile Developer World

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This White paper is published by:

Sony Mobile Communications AB,  
SE-221 88 Lund, Sweden

[www.sonymobile.com](http://www.sonymobile.com)

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First released version (January 2014)  
Publication number: 1278-0975

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# Product overview

## Xperia™ T2 Ultra XM50h highlights

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- 6-inch IPS HD screen with TRILUMINOS™ Display for mobile and Mobile BRAVIA® Engine 2
- 13MP smart social camera with Exmor RS™ for mobile and Xperia™ camera apps
- Powerful 3000 mAh battery with Battery STAMINA mode
- Super performance – LTE and Snapdragon quad-core 1.4 GHz processor
- NFC-based one-touch functions – connectivity made easy

### Large screen, maximum portability

For a phone with a 6-inch screen, the Xperia™ T2 Ultra XM50h has a surprisingly sleek look and feel. This is because of the extremely high ratio of screen to phone size – 73.6%, to be exact. And the Xperia™ T2 Ultra XM50h features an easy-toggle keyboard for one-handed input. Ideal when using its mini keypad, dial pads and easy trigger notification tray.

### True colours on the 6-inch display

The wide-viewing angle screen is a 6-inch HD TRILUMINOS™ Display for mobile. This means it's built with the same ground breaking technology as Sony BRAVIA® TVs. You can expect a wider palette and an amazingly vivid reproduction of colours. The screen also includes Mobile BRAVIA® Engine 2, a Sony display technology optimised to enhance sharpness and reduce noise.

### Camera brilliance

Everyday life is full of memorable moments. With the Xperia™ T2 Ultra XM50h, you've got the means to catch them all, and experience them again and again. This stylish smartphone has an impressive 13 megapixel smart social camera with an Exmor RS™ for mobile image sensor. All this glorious technology results in great picture quality, even in low-light situations.

### Xperia™ camera apps take your camera further

The Xperia™ T2 Ultra XM50h comes loaded with Xperia™ camera apps designed to take your creativity to the next level. Portrait retouch will make your subjects more photogenic than ever before. The app will let you apply 8 different beauty styles to your portrait – and you can check the change in real time, before capturing the shot. When in photo edit mode, you can also try the new Collage photo function. Choose from 51 templates and 25 background options and combine several pictures into a collage.

With the Timeshift-burst feature, you'll always get the best shot. This intelligent app captures 61 frames in 2 seconds. Keep the shots you want, scrap the rest. Or switch to AR Effect mode and liven up your pictures and videos with anything from animated dinosaurs to ocean life.

### Wireless NFC technology connects it all

Tired of tripping over cables? The Xperia™ T2 Ultra XM50h can be wirelessly connected to a large range of NFC-enabled Sony devices – from headsets to BRAVIA® TVs. View photos or videos from your smartphone on your TV. Or play your music through a wireless speaker or wireless headphones. You can easily and wirelessly connect the NFC devices to your smartphone with just one touch. That's it. No fiddling with buttons, settings or – you've guessed it - cables. Just pure entertainment. Just so easy.

### **Super speed and stamina**

Does speed have to compromise stamina? The Xperia™ T2 Ultra XM50h proves the answer is no. This Sony smart phone has support for lightning fast LTE networks. For super powerful performance, there's the quad-core 1.4 GHz Snapdragon processor. And thanks to Battery STAMINA Mode, you don't have to worry about wasted battery drain. This function can recognise when you're not using your display and automatically turns off the certain functions. In short, that means your battery can last longer.

### **Sony Select – great content on your Xperia™ T2 Ultra XM50h**

The best content from different applications and services, all accessible in one view. With Sony Select, you get the cherries picked for you.

For more information about Sony Select, visit <http://www.sonymobile.com/global-en/apps-services/sony-select/>.

### **Never miss a call - handle calls on both SIM cards**

Dual SIM smart phones come with many advantages. They allow you to separate work from play or handle your calls more cost-efficiently. Plus, with our new dual SIM feature, you can keep both SIM cards active at all times – so you can talk on one SIM, and still receive calls on the other, instead of getting a voice mail. This gives you the option of putting the first call on hold while answering the one coming in. And as a result, you'll never miss a call.

## Facts – dimensions, weight, performance and networks

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<b>Operating system</b>	Google™ Android™ 4.3 (Jelly Bean MR2)
<b>Processor</b>	1.4 GHz Qualcomm MSM8228 Quad Core
<b>GPU</b>	Adreno 305
<b>Size</b>	165.2 x 83.8 x 7.65mm
<b>Weight</b>	173.4 grams
<b>Available colours</b>	Black White Purple
<b>SIM card</b>	micro SIM
<b>Main screen</b>	
Colours	16,777,216 colour TFT
Resolution	720x1280 pixels
Size (diagonal)	6.0 inches
<b>Input mechanisms</b>	
Text input	On-screen QWERTY keyboard
Touch screen	Capacitive
Touch gesture	Yes – multi-touch, up to 10 fingers supported
<b>Memory</b>	
RAM	1 GB
Flash memory	8 GB*
Expansion slot	microSD™ card, up to 32 GB
<b>Camera</b>	
Camera resolution	13 MP
Digital zoom	16x
Photo light	Yes – Pulsed LED
Video recording	Yes – HD 1080p
Front Camera	Yes – HD 720p for video chat and 1.1 MP for camera capture
<b>Sensors</b>	
Accelerometer	Yes
Proximity sensor	Yes
Ambient light sensor	Yes

Magnetometer	Yes
Gyroscope	Yes
<b>Networks</b>	
XM50h	SIM 1: UMTS HSPA+ 850 (Band V), 900 (Band VIII), 1900 (Band II), 2100 (Band I) MHz GSM GPRS/EDGE 850, 900, 1800, 1900 MHz SIM 2: GSM GPRS/EDGE 850, 900, 1800, 1900 MHz
<b>Data transfer speeds</b>	
GSM GPRS	Up to 107 kbps
GSM EDGE	Up to 296 kbps
HSUPA (upload)	Cat 6, up to 5.76 Mbps
HSDPA (download)	Cat 24, up to 42 Mbps
<b>Talk time (GSM)</b>	Up to 16 hours**
<b>Standby time (GSM)</b>	Up to 1120 hours**
<b>Talk time (UMTS)</b>	Up to 30 hours**
<b>Standby time (UMTS)</b>	Up to 1093 hours**
<b>Music listening time</b>	Up to 89 hours**
<b>Video playback time</b>	Up to 11 hours**
<b>Battery (Embedded)</b>	3000 mAh minimum




\* Memory comprises approximately 3.2 GB of firmware, plus 4.8 GB of “Internal storage” for music, pictures and movies, and downloaded applications and their data.

\*\* Values are according to GSM Association Battery Life Measurement Technique as performed in controlled laboratory conditions. Actual time may vary.







NOTE: Battery performance may vary depending on network conditions and configurations, and device usage.

NOTE: Performance metrics measured under laboratory conditions.

## Categorised feature list

 <p><b>Camera</b></p> <ul style="list-style-type: none"> <li>13 megapixel camera</li> <li>16x digital zoom</li> <li>Auto focus</li> <li>Background defocus</li> <li>Burst mode</li> <li>HDR for photos and movies</li> <li>Face detection</li> <li>Flash/Pulsed LED</li> <li>Flash/Photo light</li> <li>Front-facing camera (1.1 MP 720p)</li> <li>Geotagging</li> <li>HD video recording (1080p)</li> <li>Image stabiliser</li> <li>Object tracking</li> <li>Picture Effect</li> <li>Portrait retouch</li> <li>Post editing</li> <li>Quick Launch</li> <li>Red-eye reduction</li> <li>Self-timer</li> <li>Send to web</li> <li>Smile Shutter™</li> <li>Sony Exmor R® for chat camera</li> <li>Sony Exmor RS® for main camera</li> <li>Image sensor</li> <li>Superior Auto</li> <li>Sweep Panorama</li> <li>Time shift</li> <li>Touch capture</li> <li>Touch focus</li> <li>White balance</li> </ul>	 <p><b>Music</b></p> <ul style="list-style-type: none"> <li>Sony Surround Sound technology (VPT)</li> <li>Album art</li> <li>Bluetooth® stereo (aptX®, A2DP)</li> <li>ClearAudio+</li> <li>Clear Bass™</li> <li>Clear Phase™</li> <li>Clear stereo</li> <li>Dynamic normalizer</li> <li>Low power audio playback**</li> <li>Music tones (MP3/AAC)</li> <li>PlayNow™ service*</li> <li>SensMe™</li> <li>TrackID™ music recognition*</li> <li>“WALKMAN” application</li> <li>xLOUD™ Experience</li> </ul>	 <p><b>Internet</b></p> <ul style="list-style-type: none"> <li>Bookmarks</li> <li>Pan &amp; zoom</li> <li>Sony Select</li> <li>Xperia™ Home</li> <li>Web browser (WebKit™)*</li> </ul>
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 <p><b>Communication</b>          Call list          Noise suppression          Polyphonic ringtones          Speakerphone          Slow talk          Talk equaliser          Voice enhancement</p>	 <p><b>Messaging</b>          Conversations          Email          Handwriting recognition          Instant messaging          Multimedia messaging (MMS)          One handed keyboard          Predictive text input          Sound recorder          Text messaging (SMS)</p>	 <p><b>Design</b>          Auto rotation          Content Adaptive Backlight Control (CABC)          Direct touch          Face Unlock          Gesture input          On-screen QWERTY keyboard          Battery STAMINA mode          Screenshot capturing          Throw          BRAVIA engine 2 for mobile          Touch screen          Theme          Triluminos™          Voice input          Wallpaper</p>
 <p><b>Entertainment</b>          3D games          Media browser          Motion gaming          PlayMemories          PlayStation® Certified          Radio (FM radio with RDS)          Reader mode          SensMe™ slideshow          Sony Entertainment Network*          Video streaming</p>	 <p><b>Organiser</b>          Airplane mode          Alarm clock          Calculator          Contacts          Document readers          eCompass™          Lunar calendar          Notes          Setup guide          Stopwatch          Tasks          Timer</p>	 <p><b>Connectivity</b>          3.5 mm audio jack (CTIA)          ANT+™ sport, fitness, health support          aGPS*          Bluetooth® 4.0 wireless technology          DLNA Certified®          GLONASS*          Media Go™          Media Transfer Protocol support          Micro USB support          Native USB tethering          NFC          PC Companion          Screen mirroring          Smart Connect          Microsoft® Exchange          ActiveSync®          Synchronisation via SyncML™          USB charging          USB High speed 2.0 support          WAPI          WAPI Hotspot functionality</p>

\* This service is not available in all markets.

*\*\* This feature is only available when you play music using the "WALKMAN" application.*

# Technologies in detail

**NOTE:** The information outlined below is general and levels of compliance to standards and specifications may vary between products and markets. For more information, contact Sony Mobile Developer World or your Sony contact person where applicable.

## Device-to-device communications (local)

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### ANT+™ wireless technology

Connectable devices	ANT+™ devices require the download of a supporting application
Frequency band	2.4 GHz
Data transfer rate	Up to 60 Kbps
Encryption	AES-128
Topologies	One to Many, Many to One, Peer to Peer, Star, Practical Mesh

## Bluetooth® wireless technology

Bluetooth® profiles supported	Advanced Audio Distribution Profile v1.2 Audio/Video Remote Control Profile v1.3 Device Identification Profile v1.3 Generic Attribute Profile Client/Server over LE Handsfree Profile v1.6 (Wide band speech) Headset Profile v1.2 Health Device Profile v1.1 Human Interface Device Profile, Host role v1.1 Messaging Access Profile v1.0 Object Push Profile v1.1 Personal Area Networking Profile v1.0 Phonebook Access Profile v1.1 Serial Port Profile v1.1
Core version and supported core features	Version 4.0
Other supported features	aptX® CD quality audio streaming over Bluetooth®
Connectable devices	Products support at least one of the Bluetooth® profiles listed above. Bluetooth® 4.0 accessories generally require installation of a supporting application.

More information:

[www.sonymobile.com/developer](http://www.sonymobile.com/developer)

[www.bluetooth.com](http://www.bluetooth.com)

**WAPI**

Supported standards	IEEE 802.11a/b/g/n and WLAN WLAN Direct, WLAN Protected Setup
Connectable devices	WLAN access points WLAN Direct compatible devices
Frequency band	2.4 GHz/5 GHz
Data transfer rate	Up to 150 Mbit/s
Security	Open Authentication Shared Authentication EAP-SIM EAP-AKA EAP-TLS EAP-TTLS/MSCHAPv2 PEAPv0/EAP-MSCHAPv2 PEAPv1/EAP-GTC WPA Personal and WPA2 Personal WPA Enterprise and WPA2 Enterprise
Encryption	WEP 64 bit, WEP 128 bit, TKIP and CCMP (AES)
Power save	WMM-UAPSD
QoS	WMM

**DLNA Certified® (Digital Living Network Alliance)**

Supported Device Classes	<p>M-DMS – Mobile Digital Media Server Media Types: images, music and video Summary: The digital media server exposes the media files in your device to a WLAN network. The files can then be accessed from other DLNA Certified® clients.</p> <p>+PU+ Media Types: image, video and music Summary: Play media in your device on another device, such as a TV or a PC using 2 box push technology. +PU+ is integrated in the Album, Movies and WALKMAN applications.</p> <p>M-DMP – Mobile Digital Media Player Media Types: image, video and music Summary: Play content stored on another device, for example, a server or a PC, directly on your device.</p> <p>+DN+ Media Types: video and music Summary: Download content stored on another device, for example, a server or a PC, and play the downloaded content directly on your device.</p>
Supported Bearers	WLAN WLAN Direct
DRM Support	The DLNA Certified® implementation does not support DRM-protected content.

## Messaging

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### MMS (Multimedia Messaging Service)

According to OMA Multimedia Messaging Service v1.0 + SMIL

### Email

Bearer type (IP)	GPRS, EGPRS, UMTS
Character sets	BIG5 Traditional Chinese GB18030 ISO-2022-JP Japanese ISO-8859-1 ISO-8859-2 Eastern Europe ISO-8859-5 Cyrillic ISO-8859-7 Greek ISO-8859-9 Turkish ISO 8859-11 KOI8-R Cyrillic Shift_JIS Japanese US-ASCII UTF-16 UTF-8 Windows® 874 Windows® 1251 Cyrillic Windows® 1252 Windows® 1254 Turkish Windows® 1258 Vietnamese
Protocols	POP3 and IMAP4
Push email	Microsoft® Exchange ActiveSync® (EAS)
Secure email	SSL/TLS, both port methods (POPS/IMAPS) and STARTTLS
HTML mail	Yes (read only)

More information:

[www.sonymobile.com/developer](http://www.sonymobile.com/developer)

[www.openmobilealliance.org](http://www.openmobilealliance.org)

## Positioning – location based services

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Supported standards:

- OMA Secure User Plane Location (SUPL) v1.0 & v2.0
- 3GPP™ Control Plane location (incl. Emergency location)
- Qualcomm® GPSTOneXtra™

Supported satellite systems:

- GPS
- GLONASS\*

\* NOTE: GPS and GLONASS are used together to calculate the position. Positioning is more robust and accurate in most conditions if both systems are active. The benefits of using GLONASS are automatically available for all applications using the Satellite Positioning API (referred to as "GPS Provider" in Android terminology).

## Provisioning (OMA CP)

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OMA CP version 1.1



## Multimedia (audio, image and video)

<b>Audio Playback</b>	<b>Decoder format</b>	<b>Supported in file format</b>
	MP3	MP3 (.mp3)
	AAC (AAC-LC, AAC+, eAAC+)	3GPP (.3gp, .3gpp, .m4v), MP4 (.mp4, .m4a), ADTS (.aac)
	AMR-NB, AMR-WB	3GPP (.3gp, .3gpp), MP4 (.mp4, .m4a), AMR (.amr, .awb)
	MIDI	SMF (.mid), XMF (.xmf), Mobile XMF (.mxmf), OTA (.ota), RTTTL (.rtttl), RTX (.rtx), iMelody (.imy)
	PCM	WAV (.wav)
	Vorbis	OGG (.ogg)
	FLAC	FLAC (.flac)
<b>Audio Recording</b>	<b>Encoder format</b>	<b>Supported in file format</b>
	AMR (AMR-NB, AMR-WB)	3GPP (.3gp, .3gpp), MP4 (.mp4, .m4a) AMR (.amr)
	AAC (AAC-LC)	3GPP (.3gp, .3gpp), MP4 (.mp4, .m4a)
<b>Image Playback</b>	<b>Decoder format</b>	<b>Supported in file format</b>
	Windows bitmap	BMP (.bmp)
	GIF	GIF (.gif)
	JPEG	JPEG (.jpg, .jpeg)
	PNG	PNG (.png)
	BMP	BMP (.bmp)
	WebP	WebP (.webp)
<b>Image Capture</b>	<b>Encoder format</b>	<b>Supported in file format</b>
	JPEG	JPEG (.jpg)

<b>Video Playback</b>	<b>Decoder format</b>	<b>Supported in file format</b>
	MPEG-4	3GPP (.3gp, .3gpp), MP4 (.mp4, .m4v) Matroska (.mkv), AVI (.avi), Xvid (.xvid)
	H.265*	MP4 (.mp4, .m4v)
	H.264	3GPP (.3gp, .3gpp), MP4 (.mp4, .m4v) Matroska (.mkv)
	H.263	3GPP (.3gp, .3gpp), MP4 (.mp4, .m4v)
	VP8	Webm (.webm, .mkv)
<b>Video Recording</b>	<b>Encoder format</b>	<b>Supported in file format</b>
	H.264	3GPP (.3gp, .3gpp), MP4 (.mp4, .m4v), Video Unlimited (.mrv)
	H.263	3GPP (.3gp, .3gpp), MP4 (.mp4, .m4v)
	MPEG-4	3GPP (.3gp), MP4 (.mp4)
<b>Audio/Video Streaming</b>	Streaming transport	RTSP HTTP progressive download HLS
<b>DRM</b>	DRM (Digital Rights Management) – features the rights and copy protection of downloaded content	OMA DRM v1.0 Marlin DRM Widevine Level 3 PlayReady DRM (available in specific regions)

\* NOTE: H.265 is not available in all markets.

## **Synchronisation (OMA DS, EAS)**

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OMA Data Synchronisation protocol versions 1.1.2 and 1.2

OMA Data Formats: vCard 2.1, vCalendar 1.0

Microsoft® Exchange ActiveSync® protocol version 2.5

Microsoft® Exchange ActiveSync® protocol version 12

Microsoft® Exchange ActiveSync® protocol version 12.1

Microsoft® Exchange ActiveSync® protocol version 14

Microsoft® Exchange ActiveSync® protocol version 14.1

Related information:

*[www.sonymobile.com/developer](http://www.sonymobile.com/developer)*

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