

Xperia™ acro HD



SOI12

XPERIA

Purpose of this document

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

Document history

Version

May 2012	First released version	Version 1
----------	------------------------	-----------

Sony Mobile Developer World

For the latest technical documentation and development tools, go to www.sonymobile.com/developer.

This White paper is published by:

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

www.sonymobile.com

© Sony Mobile Communications AB, 2009-2012.

All rights reserved. You are hereby granted a license to download and/or print a copy of this document.

Any rights not expressly granted herein are reserved.

First released version (May 2012)
Publication number:1252-5813

This document is published by Sony Mobile Communications AB, without any warranty*. Improvements and changes to this text necessitated by typographical errors, inaccuracies of current information or improvements to programs and/or equipment may be made by Sony Mobile Communications AB at any time and without notice. Such changes will, however, be incorporated into new editions of this document. Printed versions are to be regarded as temporary reference copies only.

*All implied warranties, including without limitation the implied warranties of merchantability or fitness for a particular purpose, are excluded. In no event shall Sony or its licensors be liable for incidental or consequential damages of any nature, including but not limited to lost profits or commercial loss, arising out of the use of the information in this document.

Table of contents

Product overview	5
Sony Xperia™ acro HD – Experience everything in HD	5
Signature features	7
Facts – dimensions, weight, performance and networks	8
Categorised feature list	10
Technologies in detail	12
Device-to-device communications (local)	12
Bluetooth™ wireless technology	12
FeliCa™	13
Wi-Fi®	14
DLNA Certified® (Digital Living Home Alliance)	15
Messaging	16
Email	16
Positioning – location based services	17
Provisioning (OMA CP)	17
Multimedia (audio, image and video)	18
Digital TV (1seg)	19
Synchronisation (OMA DS, EAS, Google Sync™)	19
Web browser	20
Trademarks and acknowledgements	21

Product overview

Sony Xperia™ acro HD – Experience everything in HD

Happy faces, remarkable places. Shoot them in full HD video and see them shine back from the crisp clear HD display. Then move on to a wider world of entertainment. Movies, hit music, PlayStation® games. And don't keep all the fun to yourself. Share it on your HD TV, straight from your smartphone.

See every detail

See every inch of that award-winning actor. Zoom in on every detail of your favourite TV show. Experience videos, photos and TV in deep, vivid, colour on the large, bright 4.3" HD Reality Display with Mobile BRAVIA® Engine. Sharp pictures. No jagged edges. Merely the terrific entertainment in HD.

Snap your shots in an instant

Some events are too good to miss. Now you don't have to. Start your camera in just over a second. Pointing and shooting takes one second too. And you can keep on shooting. No delays, no missing the subject. Just you capturing that special moment forever. Then share it direct, on Facebook™ or in a message.

Show it like it is

First day of the summer, last day at the beach. Memories may fade, but Xperia™ acro HD keeps them bright. Record it all in full HD video with the 12.1 megapixel camera, even in low light. The Exmor R™ for mobile camera sensor lightens up any gloomy day.

Got it on your smartphone? Share it on your TV

Want to be entertained? Download a movie from Video Unlimited™*. Connect Xperia™ acro HD to an HD TV with an HDMI cable and the TV launcher pops up automatically. Now use your phone to play, fast forward, or enjoy your favourite scene again.

**Sony Entertainment Network with Video Unlimited and Music Unlimited are not available in every market. Additional charges may apply.*

The Japanese touch

Stay tuned to the latest news or your favorite program even when you are away from home on the 1 seg TV. Share your personal information by IrDA with friends and use the convenient FeliCa application for all your financial transactions. Xperia™ acro HD will touch the life of every Japanese user.



Signature features

The Sony Xperia™ acro HD comes with a range of features as standard. Below is a summary of the key signature features.

Xperia™ Timescape™

The place to meet your friends

The Timescape™ application manages all your communication with one person in one place. You can effortlessly browse by category your Facebook™, Twitter™ communications, as well as view your photos. Now everything is all together and in chronological order, so you don't have to open different applications to see what's going on.

Xperia™ Infinite button

Everything you want – from everywhere

Tap the infinite button in the Timescape™ application and smart filter each category of communication by person. For example, when viewing a text message from a friend in Timescape™, tap the infinite button to view a list of all chat messages with that friend.

Xperia™ Local connectivity

More control over your media

Using Sony Local connectivity, you can exercise more control over how media files get transferred and stored. For example, you can select MTP mode to transfer files if you want to limit the risk of data corruption or select MSC mode if you want to have more control over the data storage.

Xperia™ Home screen application

The place you call Home

Customise your Home screen with widgets, shortcuts, folders, themes, wallpaper and other items. Where's best for you? Email top right? Music player bottom left? You decide. With four extensions to your Home screen, you've got plenty of space to put things where you want. Just remember to flick left or right to find them.

Facts – dimensions, weight, performance and networks

Operating system	Google™ Android™ 2.3 (Gingerbread)
Processor	1.5 GHz Qualcomm MSM8660 Dual Core
GPU	Adreno™ 220
Size	126 x 66 x 11.9 mm
Weight	149 grams
Available colours	Black White Rouge
Main screen	
Colours	16,777,216 colour TFT
Resolution	1280x720 pixels
Size (diagonal)	4.3 inches
Scratch-resistant	Shatter proof sheet on scratch-resistant glass
Input mechanisms	
Text input	POBox™ touch (Japanese)
Touch screen	Capacitive (multi-touch, up to 10 fingers supported))
Touch gesture	Yes – multi-touch
Memory	
Internal phone storage	2 GB***
RAM	1 GB
Flash memory	11 GB eMMC
Expansion slot	microSD™ card, expandable up to 32 GB
Camera	
Camera resolution	12.1 MP
Digital zoom	16x
Photo flash	No
Video recording	Yes – HD 1080p
Front Camera	Yes – HD 720p for video chat and 1.3 MP for camera capture
Sensors	
Accelerometer	Yes
Proximity sensor	Yes

Ambient light sensor**	Yes
Magnetometer	Yes
Gyroscope	Yes
Networks	
SOI12	CDMA 2000 BC0/6 HSPA+ 850 (Band V), 2100 (Band I) GSM 850/900/1800/1900
Data transfer speeds	
EV-DO Rev.A+	Up to 9.2 Mbps (download). Up to 5.5 Mbps (upload)
Talk time (GSM)	Up to 8 hours 10 min*
Standby time (GSM)	Up to 440 hours*
Talk time (UMTS)	Up to 8 hours 50 min*
Standby time (UMTS)	Up to 410 hours*
Talk time (CDMA 2000)	Up to 9 hours 30 min*
Standby time (CDMA 2000)	Up to 330 hours*
Music listening time	Up to 26 hours
Video playback time	Up to 6 hours 30 min
Embedded Battery	1900 mAh typical 1840 mAh minimum


*** Some portion of that capacity may be utilized by pre-installed applications.




** There is no API for the light sensor.

* Talk time/Standby time(GSM/UMTS) is according to the operator condition for Battery Life Measurement.

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

Categorised feature list

 <p>Camera 3D Sweep Panorama™ 12 megapixel camera 16x digital zoom Auto focus Aperture f/2.4 Exposure value Face detection Flash/Pulse LED Front-facing camera (1.3 MP) Geotagging HD video recording (1080p) Image stabiliser Red-eye reduction Smile detection™ Sony Exmor R™ for mobile image sensor Touch focus Video light Video recording White balance</p>	 <p>Music Album art Bluetooth™ stereo (A2DP) Music tones (MP3/AAC) PlayNow™ service* Music Player TrackID™ music recognition* xLoud™ Experience</p>	 <p>Internet au One Bookmarks Google Maps™ for Mobile with Google Latitude™ and Street View* Google™ search* Google Voice™ Search* Google Play™ Pan & zoom Web browser (WebKit™) Web Filtering</p>
 <p>Communication Call list Call Waiting Facebook™ application* GlobalPassport GSM/UMTS Google Talk2™ application* Jibe Noise suppression Polyphonic ringtones SIP Xperia™ Timescape™ Speakerphone Three-Way Calling Service Twitter™ (Timescape™ integration)* Skype™ Vibrating alert</p>	 <p>Messaging C-mail @Email Gmail™* Instant messaging Predictive text input Sound recorder</p>	 <p>Design Auto rotate Gesture input Gyroscope Keyboard (on-screen, 12 key) Keyboard (on-screen, QWERTY) Keyboard (on-screen, 50-character) Reality Display with Sony Mobile BRAVIA® ENGINE Screenshot capturing Touch screen Wallpaper Water resistant</p>

 <p>Entertainment 3D games Digital TV (1seg) Accelerated Adobe Flash Video Media browser Motion gaming PlayStation® Certified Radio Sony Entertainment Network* TV launcher Video streaming YouTube™*</p>	 <p>Organiser Alarm clock Airplane mode Calculator Calendar Contacts Document readers eCompass™ FeliCa Google Calendar™* Google Gallery 3D* Infinite button OfficeSuite Pro Setup guide Widget manager</p>	 <p>Connectivity 3.5 mm audio jack (CTIA) aGPS* Bluetooth™ wireless technology DLNA Certified® GLONASS* HDMI support IrDA™ Media Transfer Protocol support Micro USB support Native USB tethering PC Companion Synchronisation via Microsoft® Exchange ActiveSync® USB mass storage USB High speed 2.0 support Wi-Fi® Wi-Fi® Hotspot functionality</p>
--	--	---

* This service is not available in all markets.

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)

Bluetooth™ wireless technology

Bluetooth™ profiles supported	Advanced Audio Distribution Profile v1.2 Audio/Video Remote Control Profile v.1.0 Handsfree Profile v1.5 Headset Profile v1.1 Object Push Profile v1.1 Phonebook Access Profile v1.0 Serial Port Profile v1.1
Core version and supported core features	Advanced Audio 2.1 + EDR
Connectable devices	Products supporting at least one of the profiles above.

More information:

www.sonymobile.com/developer

www.bluetooth.com

IrDA

Supported standards	IrReady
Data transfer rate	IrDA SIR: up to 115.2 kbps
Maximum transfer data size	Up to 2MB

Data Communication	
Sending of Data	Comment
Contacts (include MyProfile)	The phone has support for transfer of one or all contacts, including MyProfile.
Picture	The phone has support for transfer of single picture files. Supported format is according to Android standard.
Movie	The phone has support for transfer of single movie files. Supported format is according to Android standard.
Music	The phone has support for transfer of single music tracks. Supported format is according to Android standard.
Reception of Data	Comment
All file formats can be received.	Files in non-supported formats are stored in internal memory.

FeliCa™

Mobile FeliCa Client	Ver 2.1.1
Card mode	Yes
R/W	Yes (Internal card / External card)
Ad-hoc	Yes
FALP	Yes

Wi-Fi®

Supported standards	IEEE 802.11b/g/n and Wi-Fi
Connectable devices	Wi-Fi® access points
Frequency band	2.4 GHz
Data transfer rate	Up to 72 Mbit/s
Security	WEP 64 bit WEP 128 bit Wi-Fi Direct TKIP CCMP (AES) Open Authentication Shared Authentication EAP-SIM EAP-TLS EAP-TTLS/MSCHAPv2 PEAPv0/EAP-MSCHAPv2 PEAPv1/EAP-GTC WPA Personal and WPA2 Personal WPA Enterprise and WPA2 Enterprise
Encryption	WEP, TKIP and AES
Power save	WMM-UAPSD QoS, WMM
Auto setup	WPS

DLNA Certified® (Digital Living Home Alliance)

Supported Device Classes	<p>M-DMS – Mobile Digital Media Server Media Types: images Summary: The digital media server exposes the media files in your phone to a Wi-Fi® 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 the phone on another device, such as a TV or computer using 2 box push technology. +PU+ is integrated in the Gallery and Music 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 the phone.</p>
Supported Bearers	<p>Wi-Fi® Wi-Fi Direct</p>
DRM Support	<p>The Sony DLNA Certified® implementation does not support DRM-protected content.</p>

NOTE: Only M-DMS/M-DMP/+PU+ for image is used for DLNA Certification.

Messaging

Email

Bearer type (IP)	CDMA2000 1x, EVDO, GSM, 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 USASCII 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 START-TLS
HTML mail	Yes (read only)

More information:

www.sonymobile.com/developer

www.openmobilealliance.org

Positioning – location based services

Supported standards:

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

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 ("GPS Provider" in Android terminology).

Provisioning (OMA CP)

OMA CP version 1.1

Multimedia (audio, image and video)

Audio Playback	Decoder format	Supported in file format
	Audio decoding MPEG-1/2/2.5, audio layer 3	MP3 (.mp3), 3GPP (.3gp), MP4 (.mp4, .m4a)
	AAC, AAC+, eAAC+	3GPP (.3gp), MP4 (.mp4)
	AMR-NB, AMR-WB	3GPP (.3gp)
	General MIDI (GM)	SMF (.mid)
	Linear PCM 16bit	WAV (.wav)
	OTA	OTA (.ota)
	Ogg vorbis	Ogg vorbis (.ogg)
Audio Recording	Encoder format	Supported in file format
	AMR-NB, AMR-WB	3GPP (.3gp)
	AAC-LC stereo, sample rate 48 kHz bit rate 128 kbps	3GPP (.3gp), MP4 (.mp4)
Image Playback	Decoder format	Supported in file format
	1, 4, 8, 16, 24 and 32 bpp and RLE encoded formats	BMP (.bmp)
	Single and multi-frame, bitmap mask support (GIF87a format and GIF89a format)	GIF (.gif)
	Joint Photographic Experts Group	JPEG (.jpg)
	Portable Network Graphics Bitmap mask support	PNG (.png)
Image Capture	Encoder format	Supported in file format
	Joint Photographic Experts Group	JPEG (.jpg)
Video Playback	Decoder format	Supported in file format
	MPEG-4 Visual Simple Profile, Advanced Simple Profile Level 6	3GPP (.3gp), MP4 (.mp4)
	H.264 Baseline/Main/High Profile Level 4	3GPP (.3gp), MP4 (.mp4)
	H.263 Profile 0, Profile 3 Level 70	3GPP (.3gp), MP4 (.mp4)
Video Recording	Encoder format	Supported in file format
	Video H.263 Profile 0, H.264 Baseline Profile Audio: AAC-LC stereo, sample rate 48 kHz bit rate 128 kbps	3GPP (.3gp), MP4 (.mp4)

Audio/Video Streaming	Streaming transport	RTSP according to 3GPP™ HTTP streaming
DRM	DRM (Digital Rights Management) – features the rights and copy protection of downloaded content	OMA DRM 1.0 Marlin DRM

Digital TV (1seg)

Data Broadcasting	Supported
Caption	Supported
Recording	Not supported
Viewing reservation	Not supported
Recording reservation	Not supported
G-Guide application	Supported (only IPG)

Synchronisation (OMA DS, EAS, Google Sync™)

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

Google Sync™

Related information:

www.sonymobile.com/developer

Web browser

Browser version	Android 2.3 Browser (Based on WebKit)
Navigation/rendering	Adobe™ Flash™ 11* Full page PC rendering Landscape/portrait rendering Pan & Zoom
Search	Internet Search
Browser compliancy	CSS 2.0 CSS 2.1 CSS 3.0 DOM 2.0 DOM 3.0 HTML version. 4.0 HTML version. 5.0 JavaScript 1.7/ECMA-script 262 3rd edition WebGL 1.0 XHTML Basic version 1.0 XHTML 1.1
Supported Device API	Geo-location API
Protocol compliancy	Gzip HTTP/1.1 OMA Download 1.0 TLS 1.0 and SSL 3.0

* Updates are distributed via Android market™.

Related information:

www.sonymobile.com/developer

Trademarks and acknowledgements

The Liquid Identity and Liquid Energy logos, PlayNow, TrackID, Xperia and Timescape are trademarks or registered trademarks of Sony Ericsson Mobile Communications AB. Sony, "make.believe", Exmor R, FeliCa, xLOUD, Sweep Panorama, Music Unlimited, Video Unlimited and Mobile BRAVIA Engine are trademarks or registered trademarks of Sony Corporation. Ericsson is a trademark or registered trademark of Telefonaktiebolaget LM Ericsson. PlayStation and PlayStation Certified are trademarks or registered trademarks of Sony Computer Entertainment, Inc. POBox is a trademark or registered trademark of Sony Corporation. POBox is technology jointly developed by Sony Computer Science Laboratories, Inc. and Sony Ericsson Mobile Communications Japan, Inc.

The Bluetooth word mark and logos are owned by the Bluetooth SIG, Inc. and any use of such marks by Sony Ericsson is under licence. TrackID is powered by Gracenote Mobile MusicID. Gracenote and Gracenote Mobile MusicID are trademarks or registered trademarks of Gracenote, Inc. Skype is a trademark or a registered trademark of Skype Limited.

Google, Gmail, Google Calendar, Google Latitude, Google Maps, Google Places, Google Talk, Google Search, Google Sync, Google Mail, Picasa, YouTube, Google Voice, Android and Android Market are trademarks or registered trademarks of Google, Inc. Facebook is a trademark or registered trademark of Facebook, Inc. Twitter is a trademark or a registered trademark of Twitter, Inc.

Wi-Fi is a trademark or registered trademark of the Wi-Fi Alliance. DLNA and DLNA Certified are trademarks or registered trademarks of the Digital Living Network Alliance. microSD is a trademark or registered trademark of SanDisk Corporation. XHTML is a registered trademark of the W3C. eCompass is a trademark or registered trademark of Genoptix, Inc.

Microsoft, Windows, PlayReady, and ActiveSync are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Adobe Flash is a trademark or registered trademark of Adobe Systems Incorporated in the United States and/or other countries. 3GPP™ is a trademark of ETSI.

Need for Speed, the "N" icon and the Need for Speed logo are trademarks of Electronic Arts Inc.

Java, JavaScript and Java-based trademarks and logos are trademarks or registered trademarks of Oracle America, Inc., in the U.S. and other countries. End-user license agreement for Oracle Java Platform, Micro Edition. 1. Restrictions: Software is confidential copyrighted information of Oracle and title to all copies is retained by Oracle and/or its licensors. Customer shall not modify, decompile, disassemble, decrypt, extract, or otherwise reverse engineer Software. Software may not be leased, assigned, or sublicensed, in whole or in part. 2. Export Regulations: Software including technical data, is subject to U.S. export control laws, including the U.S. Export Administration Act and its associated regulations, and may be subject to export or import regulations in other countries. Customer agrees to comply strictly with all such regulations and acknowledges that it has the responsibility to obtain licenses to export, re-export, or import Software. Software may not be downloaded, or otherwise exported or re-exported (i) into, or to a national or resident of, Cuba, Iraq, Iran, North Korea, Libya, Sudan, Syria (as such listing may be revised from time to time) or any country to which the U.S. has embargoed goods; or (ii) to anyone on the U.S. Treasury Department's list of Specially Designated Nations or the U.S. Commerce Department's Table of Denial Orders. 3. Restricted Rights: Use, duplication or disclosure by the United States government is subject to the restrictions as set forth in the Rights in Technical Data and Computer Software Clauses in DFARS 252.227-7013(c) (1) and FAR 52.227-19(c) (2) as applicable.

Qualcomm, Adreno, and GPSONEXTRA are trademarks or registered trademarks of Qualcomm, inc.

IrDA is a trademark or a registered trademark of the Infrared Data Association. WebKit is a trademark or registered trademark of Apple, Inc.

All other trademarks and copyrights are the property of their respective owners. Some features described herein require supporting services. Usage charges may apply for such service.