i.MX Android™ Extended Codec Release Notes

1 Release Description

The features described in the release notes are NXP extended media formats and codecs based on Android™ native media framework.

Only codecs that have no license restriction are included in the standard release package.

Codecs that have license restriction are provided in separate packages. For more details, see Section 6.

2 Supported Hardware SoCs/ Boards

- i.MX 6Quad SABRE-SD board and platform
- i.MX 6DualLite SABRE-SD platform
- i.MX 6Quad SABRE-AI platform
- i.MX 6DualLite SABRE-AI platform
- i.MX 6SoloX SABRE-SD platform
- i.MX 6SoloX SABRE-AI Platform
- i.MX 6SoloLite EVK platform
- i.MX 6QualPlus SABRE-AI platform
- i.MX 6QualPlus SABRE-SD platform
- i.MX 7Dual SABRE-SD board

Contents

3 What's New

- Enhanced stability and robustness.

4 Enhanced Features

4.1 Local playback

This section describes the local playback information.

4.1.1 Enhanced and extended formats and codecs

The following table provides the information about the enhanced codecs.

Table 1. Enhanced codecs

File extension	Demuxers	Video decoders	Audio decoders
.mp3	-	-	MP3
.aac/.adts	-	-	AAC LC/PLUS
.wav	-	-	LPCM
.flac	-	-	FLAC
.amr/.awb	-	-	AMR-NB/AMR-WB
.mp4 .mov .f4v	MP4	MPEG4 SP/ASP except GMC H.264 BP/MP/HP H263 MJPEG HEVC	AAC LC/PLUS MP3 Dolby Digital Plus
.m4a	MP4		AAC LC/PLUS
.3gp	MP4	MPEG4 SP/ASP except GMC H.264 BP/MP/HP H263 HEVC	AAC LC/PLUS AMR-NB AMR-WB
.avi	AVI	MPEG4 SP/ASP except GMC Xvid H.264 BP/MP/HP H263 MJPEG HEVC	AAC LC/PLUS MP3 LPCM
.wma	ASF	-	WMA STD, PRO, Lossless

Table continues on the next page...

i.MX Android™ Extended Codec Release Notes, Rev. O8.0.0_1.0.0, 02/2018

Table 1. Enhanced codecs (continued)

File extension	Demuxers	Video decoders	Audio decoders
			Dolby Digital Plus
.wmv/.asf	ASF	VC-1 SP/MP/AP WMV 7/8 HEVC	WMA STD, PRO, Lossless
.mkv/mka	MKV	H.264 BP/MP/HP MPEG4 SP/ASP except GMC Xvid VC-1 SP/MP/AP HEVC	AAC MP3 WMA STD, PRO, Lossless Vorbis Dolby Digital Plus Opus
.flv/.f4v	FLV	Sorenson H263 H.264 BP/MP/HP	MP3 AAC
.mpg .vob .ts .m2ts	MPEG2/PS MPEG2/TS	MPEG2 BP/MP MPEG2 BP/MP H.264 BP/MP/HP	MP3 AAC AC3 LPCM Dolby Digital Plus
.webm	MKV	VP8	MP3 AAC LC/PLUS
.rmvb	RM	RV 8/9/10	RA
.rm	RM	RV 8/9/10	AAC
.ra	RM	-	RA

NOTE
- For detailed video and audio codec capability, see Section 5 "Codec Specification".
- AC3, AACPlus, ASF, WMV, WMA, DDPlus, and RMVB are restricted codec packages and are not generally available. Install them from the Restricted Codec Package.
- MJPEG subtypes and MJPEG_2000 and MJPEG_B are not supported.
- MJPEG only supports YUV420 and YUV422 (horizontal) color formats.

4.2   Streaming playback

The following table provides the information about streaming playback.

Table 2.   Feature matrix for streaming playback

Protocol	File format
HTTP	.mp4/.3gp/.mov .flv/ .f4v .avi

Table continues on the next page...

i.MX Android™ Extended Codec Release Notes, Rev. O8.0.0_1.0.0, 02/2018

Table 2. Feature matrix for streaming playback (continued)

Protocol	File format
	.wmv/.asf
	.mpg/.vob/.ts
	.mp3
	.aac
	.wma
	.mkv
RTP	.ts
UDP	.ts

To set up RTP/UDP streaming, perform the following operations:

- Install vlc 1.1.5 on Windows® OS or Ubuntu.
- For UDP streaming server: run VLC with the command:

```
vlc -vvv stream_file_name --sout udp://224.0.1.1:1234
```
- For the RTP streaming server:

    a. Start vlc with the GUI, and select MediaStreaming.
    b. Press Add to load the stream file, press Stream, and click Next.
    c. Select RTP/Mpeg Transport Stream from the drop-down list, and click Add.
    d. Enter the IP address 224.0.1.1 and base port number 5004, and deselect Activate Transcoding.
    e. Press Stream at the bottom. The server is started.
- For the UDP streaming client, run the Gallery on the Android platform with the command:

```
am start -n com.android.gallery3d/com.android.gallery3d.app.MovieActivity -d udp://
224.0.1.1:1234
```
- For the RTP streaming client, run Gallery on the Android platform with the command:

```
am start -n com.android.gallery3d/com.android.gallery3d.app.MovieActivity -d rtp://
224.0.1.1:5004
```
- For the uni-cast, use the client IP address instead of 224.0.1.1 when starting the server, and use the server IP address instead of 224.0.1.1 when starting the client.

5 Codec Specification

5.1 Video decoder for i.MX with VPU hardware

Table 3. Video decoder for i.MX with VPU hardware

Feature	Profile	Max. resolution	Min. resolution	Max. framerate	HW/SW	Bitrate	Comments
MPEG2	MP	1920 * 1080	64 * 64	30 fps	HW	50 Mbps	-
MPEG4/Xvid	SP	1920 * 1080	64 * 64	30 fps	HW	40 Mbps	-
	ASP	1920 * 1080	64 * 64	30 fps	HW		-

Table continues on the next page...

i.MX Android™ Extended Codec Release Notes, Rev. O8.0.0_1.0.0, 02/2018

Table 3.   Video decoder for i.MX with VPU hardware (continued)

Feature	Profile	Max. resolution	Min. resolution	Max. framerate	HW/SW	Bitrate	Comments
H.263	P3	1920 * 1080	64 *64	30 fps	HW	20 Mbps	-
H.264	BP	1920 * 1080	64 * 64	30 fps	HW	50 Mbps	-
	MP	1920 * 1080	64 * 64	30 fps	HW		-
	HP	1920 * 1080	64 * 64	30 fps	HW		-
VC-1	SP	1920 * 1080	64 * 64	30 fps	HW	45 Mbps	-
	MP	1920 * 1080	64 * 64	30 fps	HW		-
	AP	1920 * 1080	64 * 64	30 fps	HW		-
VP8	-	1280 * 720	64 * 64	30 fps	HW	20 Mbps	i.MX 6Quad
		1920 * 1080	64 * 64	30 fps	HW		i.MX 6DualLite
MJPEG	-	1920 * 1080	64 * 64	30 fps	HW	120 Mpixl/s	-
RV	8/9/10	1920 * 1080	64 * 64	30 fps	H/W	40 Mbps	-
WMV7/8	-	640 * 480	64 * 64	15 fps	SW	-	-
SorensonH263	-	720 * 480	64 * 64	30 fps	SW	-	-
VP9	-	720 * 480	64 * 64	30 fps	SW	-	-
HEVC	Main	720 * 480	64 * 64	30 fps	SW	-	-

5.2   Video decoder for i.MX without VPU hardware

Use Android OS default software video decoders for i.MX processors that do not have VPU hardware.

5.3   Video encoder for i.MX with VPU hardware

Table 4.   Video encoder for i.MX 6Quad/Dual/DualLite

Feature	Profile	Max. resolution	Min. resolution	Max. framerate	HW/SW	Bitrate	Comments
MPEG4	SP	1280 * 720	64 * 64	30 fps	HW	12 Mbps	-
H.263	P3	1280 * 720	64 * 64	30 fps	HW	8 Mbps	-
H.264	BP	1920 * 1080	64 * 64	30 fps	HW	14 Mbps	-

5.4 Audio decoder

Table 5. Audio decoder

Encoder	Feature/Profile	Channel	Rate (KHz)	Bitrate	HW/SW	Comments
MP3	MPEG-1 (Layer-1/ Layer-2/Layer-3) MPEG-2 (Layer-1/ Layer-2/Layer-3) MPEG-2.5 (Layer-3)	stereo/mono	<=48	8-448	SW	-
AACLC	MPEG-2 AACLC MPEG-4 AACLC	<=5.1	8-96	8-256	SW	-
HE-AAC	HE-AAC V1 HE-AAC V2	stereo/mono	8-96	Mono: 8-384 stereo:16-768	SW	-
WMA10 Std	L1 @ QL1	stereo/mono	44.1	64-161	SW	-
	L2 @ QL1	stereo/mono	<=48	<=161	SW	-
	L3 @ QL1	stereo/mono	<=48	<=385	SW	-
WMA10 Pro	M0a @ QL2	stereo/mono	<=48	48-192	SW	-
	M0b @ QL2	stereo/mono	<=48	<=192	SW	-
	M1 @ QL2	<=5.1	<=48	<=384	SW	-
	M2 @ QL2	<=5.1	<=96	<=768	SW	-
	M3 @ QL2	<=7.1	<=96	<=1500	SW	-
WMA 9 Lossless	N1	stereo/mono	<=48	<=3000	SW	-
	N2	<=5.1	<=96	<=3000	SW	-
	N3	<=7.1	<=96	<=3000	SW	-
AC-3	-	<=5.1	<=48	32-640	SW	-
FLAC	-	<=7.1	8-192	-	N/A	-
DD-plus	-	<=7.1	32, 44.1, 48 64, 88.2, 96	<=6.144 Mbps	SW	-
RA	cook	stereo/mono	8k, 11.025k, 22.05k, 44.1k	-	SW	-

5.5 Audio encoder

Use Android OS default audio encoders.

6 License Restricted Codecs

For information about receiving the restricted codec packages, contact an NXP representative.

i.MX Android™ Extended Codec Release Notes, Rev. O8.0.0_1.0.0, 02/2018

6.1 Package list

The following features are supplementary to standard codec release packages.

Table 6.   License limited codecs

Package name	Feature
fsl_ac3_dec.tar.gz	Audio Codec: AC3
fsl_ddp_dec.tar.gz	Audio Codec: DD Plus
fsl_aacp_dec.tar.gz	Audio Codec: AACPlus
fsl_ms_codec.tar.gz	• Demuxer: ASF • Video Decoder: WMV • Audio Codec: WMA
fsl_real_dec.tar.gz	• Demuxer: RM • Video Decoder VPU firmware • Audio Decoder: RA

6.2 How to install the license limited codecs

See the readme file for each package.

7 Limitations of This Release

- The minimum resolution is 64*64
- Complex Profile of WMV9 is not supported
- Multimedia files that do not have index table may not be searchable
- Corrupted multimedia files may not be searchable and may have an incorrect duration

8 Known Issues

None.

9 Revision History

Table 7.   Revision history

Revision number	Date	Substantive changes
O8.0.0_1.0.0	02/2018	Initial release

How to Reach Us:

Home Page:
nxp.com

Web Support:
nxp.com/support

Information in this document is provided solely to enable system and software implementers to use NXP products. There are no express or implied copyright licenses granted hereunder to design or fabricate any integrated circuits based on the information in this document. NXP reserves the right to make changes without further notice to any products herein.

NXP makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does NXP assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters that may be provided in NXP data sheets and/or specifications can and do vary in different applications, and actual performance may vary over time. All operating parameters, including "typicals", must be validated for each customer application by customerís technical experts. NXP does not convey any license under its patent rights nor the rights of others. NXP sells products pursuant to standard terms and conditions of sale, which can be found at the following address: nxp.com/SalesTermsandConditions.

Document Number: IMXACRN
Rev. O8.0.0_1.0.0
02/2018