Freescale Semiconductor
Release Notes

Document Number:IMX6YMMRN
Rev L3.10.17_1.0.0-ga, 05/2014

i.MX 6 Series Yocto Project Multimedia Release Notes

1 BSP Requirements

- Hardware requirements:
  - i.MX 6DualLite/6Quad SABRE-SD board/ platform
  - i.MX 6DualLite /6Quad SABRE-AI board
  - i.MX 6SoloLite EVK board
- Software requirements:
  - Board Support Package (BSP):

    i.MX Linux BSP version L3.10.17
- Gstreamer:
  - gstreamer (version 0.10.36)
  - gstreamer-plugins-base (version 0.10.36)
  - gstreamer-plugins-good (version 0.10.31)

2 What's New

- Improved VPU plugins (decoder and encoder) compatibility with open source plugins.
- Bugs fixed and robustness enhanced.

Contents

3 Release Contents

Table 1. Packages for Yocto Project release

Package	Name	Package	Remark
Standard package	Gstreamer plugins	gst-fsl-plugins-[version].tar.gz	FSL Gstreamer plugins
	libfsl codec	libfslcodec-[version].bin	FSL optimized A/V core codec
	libfsl parser	libfslparser-[version].bin	FSL optimized core parser
	libfslvpuwrap	libfslvpuwrap-[version].bin	FSL VPU wrapper for vpu library
	gst plugins gl	gst-plugins-gl-[version].bin	FSL gl render plugins
	alsa plugins	fsl-alsa-plugins-[version].bin	FSL ASRC plugins module for alsa lib
Special package	AACPlus Dec	libfslaacpcodec-[version].bin	FSL AACplus core decoder
	MS Codec	libfslmscodec-[version].bin	FSL optimized MS CODEC
	MS parser	libfslmsparser-[version].bin	FSL optimized asf parser
Excluded package	AC3 Dec	libfslac3codec-[version].bin	FSL AC3 core decoder
	DDplus Dec	libfslddpcodec-[version].bin	FSL DD-plus decoder

4 Freescale GStreamer Plugins

Table 2. Freesclae Gstreamer plugins

Audio decoder	• beepdec: unified audio decoder plugin Supports MP3, AAC, AAC+, WMA, AC3, Vorbis, DD+ • mfw_amrdecoder: AMR audio decoder
Audio encoder	• mfw_mp3encoder: MP3 audio encoder plugin • mfw_wma8encoder: WMA8 audio encoder plugin
Audio process	mfw_audio_ppaudio: audio equalizer
Video decoder	• vpudec: VPU-based video decoder plugin • mfw_h264decoder: software H264 video decoder plugin • mfw_mpeg4aspdecoder: software MPEG4 video decoder plugin • mfw_mpeg2decoder: software MPEG2 video decoder plugin • mfw_wmvdecoder : software WMV78 video decoder plugin • mfw_wmv9mpdecoder: software WMV9 main profile video decoder plugin
Video encoder	vpuenc: VPU-based video encoder plugin
Video process	mfw_ipucsc: IPU-based video converter
Demux	aiurdemux: aiur universal demuxer plugin supporting Supports AVI, MKV, MP4, MPEG2, ASF, OGG, FLV, WebM
Video render	• mfw_v4lsink: v4l2 video sink plugin • mfw_isink: IPU device based video sink plugin • glimagesink: videosink based on OpenGL
Camer source	mfw_v4lsrc: v4l2 based embedded camera SRC plugin

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Table 2. Freesclae Gstreamer plugins (continued)

TV-In source	tvsrc: v4l2 based TV-In SRC plugin

NOTE

- To support WMA, WMV, AAC+, AC3, DD+ decoding, and WMA encoding, special and excluded packages need to be installed.
- The vpudec and vpuenc plugins are only for SoCs with VPU hardware.
- mfw_isink is unavailable with the SoCs with PXP.
- mfw_v4lsink does not support resizing and rotation in the SoCs with PXP.
- glimagesink is only available for those SoCs with GPU 3D.

5 Multimedia Feature Matrix

This section provides feature matrix details of various codecs used for play back.

5.1 Parser/Demuxer specifications

Table 3. Parser/Demuxer supported audio/video

Demuxer feature		ASF	AVI	MP4	OGG	FLV	MPG2	MKV
Video	H264	-	Y	Y	-	Y	Y	Y
	MPEG2	-	Y	-	-	-	Y	Y
	MPEG4	Y	Y	Y	-	-	-	Y
	H263	-	Y	Y	-	Y	-	Y
	MJPEG	-	Y	Y	-	-	-	Y
	VC1	Y	Y	-	-	-	-	Y
	DivX	Y	Y	Y	-	-	-	Y
	Xvid	-	Y	-	-	-	-	Y
	VP8	-	-	-	-	-	-	Y
	VP6	-	-	-	-	Y	-	Y
	Theora	-	-	-	Y	-	-	-
	RV	-	-	-	-	-	-	Y
Audio	AAC	-	Y	Y	-	Y	Y	Y
	MP3	Y	Y	Y	-	Y	Y	Y
	WMA	Y	Y	-	-	-	-	Y
	AC3	-	Y	Y	-	-	Y	Y
	PCM/ADPCM	Y	Y	Y	-	Y	Y	Y
	AMR	-	-	Y	-	-	-	Y
	Vorbis	-	Y	Y	Y	-	-	Y
	SPEEX	-	-	-	Y	Y	-	Y
	DTS	-	-	-	-	-	Y	Y

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Table 3. Parser/Demuxer supported audio/video (continued)

Demuxer feature		ASF	AVI	MP4	OGG	FLV	MPG2	MKV
	FLAC	-	-	-	Y	-	-	Y
	DD+	Y	-	Y	-	-	Y	Y

NOTE

The demuxer support of a certain audio or video type does not necessarily mean that it can be played. This depends on the availability of the codec.

5.2 Video codec specification for i.MX 6Quad/6DualLite

Table 4. Video codec specification for i.MX 6Quad/6DualLite

	Feature	Profile	Max. resolution	Min. resolution	Max. framerate	H/W or S/W	Comment
Video decoder	MPEG2	MP	1920 * 1080	64 * 64	30 fps	H/W	-
	MPEG4	SP	1920 * 1080	64 * 64	30 fps	H/W	-
		ASP	1920 * 1080	64 * 64	30 fps	H/W	-
	H.263	P3	1920 * 1080	64 * 64	30 fps	H/W	-
	H.264	BP	1920 * 1080	64 * 64	30 fps	H/W	-
		MP	1920 * 1080	64 * 64	30 fps	H/W	-
		HP	1920 * 1080	64 * 64	30 fps	H/W	-
	VC-1	SP	1920 * 1080	64 * 64	30 fps	H/W	-
		MP	1920 * 1080	64 * 64	30 fps	H/W	-
		AP	1920 * 1080	64 * 64	30 fps	H/W	-
	VP8	-	1280 * 720	64 * 64	30 fps	H/W	i.MX 6DualLite
			1920 * 1080	64 * 64	30 fps	H/W	i.MX 6Quad
	MJPEG	-	1920 * 1080	64 * 64	30 fps	H/W	-
Video encoder	MPEG4	SP	1280 * 720	64 * 64	30 fps	H/W	-
	H.263	P3	1280 * 720	64 * 64	30 fps	H/W	-
	H.264	BP	1920 * 1080	64 * 64	30 fps	H/W	-
	MJPEG	-	1920 * 1080	64 * 64	30 fps	H/W	-

5.3 Video codec specification for i.MX 6SoloLite

Table 5. Video codec specification for i.MX 6SoloLite

	Feature	Profile	Max. resolution	Min. resolution	Max. framerate	H/W or S/W	Comment
Video decoder	MPEG4	SP	D1	64 * 64	30 fps	S/W	SupportS H263BP
		ASP	D1	64 * 64	30 fps	S/W	-
	H.264	BP	CIF	64 * 64	30 fps	S/W	-
	WMV9	SP	D1	64 * 64	30 fps	S/W	-
		MP	D1	64 * 64	30 fps	S/W	-

5.4 Audio codec specification

Table 6. Audio codec specification

Decoder	Feature/Profile	Channel	Sample rate (KHz)	Bit rate (kbps)	H/W or S/W	Comment
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	S/W	-
AACLC	MPEG-2 AACLC MPEG-4 AACLC	<= 5.1	8 - 96	8 - 256	S/W	-
HE-AAC	HE-AAC V1 HE-AAC V2	stereo/mono	8 - 96	Mono: 8 - 384 stereo: 16 - 768	S/W	-
WMA10 Std	L1 @ QL1	stereo/mono	44.1	64 - 161	S/W	-
	L2 @ QL1	stereo/mono	<= 48	<= 161	S/W	-
	L3 @ QL1	stereo/mono	<= 48	<= 385	S/W	-
WMA10 Pro	M0a @ QL2	stereo/mono	<= 48	48 - 192	S/W	-
	M0b @ QL2	stereo/mono	<= 48	<= 192	S/W	-
	M1 @ QL2	<= 5.1	<= 48	<= 384	S/W	-
	M2 @ QL2	<= 5.1	<= 96	<= 768	S/W	-
	M3 @ QL2	<= 7.1	<= 96	<= 1500	S/W	-
WMA 9 Lossless	N1	stereo/mono	<= 48	<= 3000	S/W	-
	N2	<=5.1	<= 96	<= 3000	S/W	-
	N3	<=7.1	<= 96	<= 3000	S/W	-
AC-3	-	<=5.1	<= 48	32 - 640	S/W	-
FLAC	-	<=7.1	8 - 192	-	N/A	-
BSAC	-	<=5.1	<= 48	64 per channel	N/A	Core codec only

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Table 6. Audio codec specification (continued)

Decoder	Feature/Profile	Channel	Sample rate (KHz)	Bit rate (kbps)	H/W or S/W	Comment
Ogg Vorbis	q1 - q10	Stereo	8 - 192	<= 500	S/W	-
DD-plus	-	<=7.1	32, 44.1, 48 64, 88.2, 96	<= 6.144 Mbps	S/W	-

Table 7. Audio encoder specification

Encoder	Feature/Profile	Channel	Rate (KHz)	Bit rate	H/W or S/W	Comment
MP3	MPEG-1/ Layer-3	Stereo/Mono	32, 44.1,48	See Note	S/W	-
WMA8	L1/L2/L3	Stereo/Mono	22.05, 32, 44.1, 48	See Note	S/W	-

NOTE

- The bitrate (bps) supported for MP3 encoder: 32k, 48k, 56k, 64k, 80k, 96k, 112k, 128k, 160k, 192k, 224k, 256k, 320k
- The sample and supported bitrate (bps) combinations for WMA8 encoder:
  - For mono output:
    - 22050 Hz: 20k, 16k, 22k, 17.6k
    - 32000 Hz: 20k, 22k
    - 44100 Hz: 32k, 35.2k, 48k, 52.8k
  - For Stereo output:
    - 22050 Hz: 35.2k, 32k, 22k, 20k
    - 32000 Hz: 52.8k, 48k, 44k, 40k, 35.2k, 32k
    - 44100 Hz: 211.2k, 192k, 176k, 160k, 140.8k, 128k, 105.6k, 96k, 88k, 80k, 70.4k, 64k
    - 48000 Hz: 211.2k, 192k, 176k, 160k, 140.8k, 128k

5.5 Image codec specification

Table 8. Image codec specification

	Feature	Profile	Max. resolution	H/W or S/W
Image decoder	JPEG	Baseline	Memory related	S/W
	PNG	N/A	Memory related	S/W
	GIF	N/A	Memory related	S/W
	BMP	N/A	Memory related	S/W
Image encoder	JPEG	Baseline	Memory related	S/W

5.6 Speech codec specification

Table 9. Speech codec specification

	Feature	Sample rate	Bit rate (kbps)	H/W or S/W
Speech codec	G.711	8 KHz	64	S/W
	G.723.1	8 KHz	5.3, 6.3	S/W
	G.726	8 KHz	16, 24, 32, 40	S/W
	G.729ab	8 KHz	8	S/W
	AMR_NB	8 KHz	12.2, 10.2, 7.9, 7.4, 6.7, 5.9, 5.15, 4.75	S/W
	AMR_WB	16 KHz	23.85, 23.05, 19.85, 18.25, 15.85, 14.25, 12.65, 8.85, 6.6	S/W

5.7 Streaming protocol specification

Table 10. Streaming protocol specification

Protocol	Feature
HTTP	HTTP progressive streaming
RTSP	RTP, SDP
RTP/UDP	RTP/UDP MPEGTS streaming

5.8 RTSP streaming server specification

Table 11. RTSP streaming server specification

Demux feature		AVI	MP4	FLV	MKV	MP3	AAC
Video	H264	Y	Y	Y	Y	-	-
	MPEG4	Y	Y	-	Y	-	-
Audio	MP3	Y	Y	Y	Y	Y	-
	AAC	Y	Y	Y	Y	-	Y

NOTE

To support the RTSP server, the gst-rtsp-server open source package needs to be installed. You can follow Section “RTSP Streaming Server” in the *i.MX 6 Series Yocto Multimedia User’s Guide* for how to build and install it.

6 Documentation

Table 12. Documentation details

Document name	Description
i.MX 6 Series Yocto Project Multimedia Release Notes	This document.
i.MX 6 Series Yocto Project Multimedia User's Guide	A document describes how to build Freescale Multimedia components with Yocto Project, and how to run various multimedia usage cases with Gstreamer command lines.

7 Known Issues and Limitations

- As the maximum buffer size of the playbin2 multi-queue is 2 MB, it may cause problems for some long audio or video interleaved streams. You can enlarge this buffer size to support special cases.
- The rotation is not supported for interlaced stream whose width or height is larger than 968x968 due to driver limitation.
- The rotation is not supported for the display resolution larger than 1024x1024 due to driver limitation.
- v4lsrc plug-in does not support rotation.
- AAC decoder: The ADIF format does not support seek mode.
- Play recorded AVI file (MPEG4(vpu) + AVI(avimux)) failed as the AVIMUX mark MPEG4 video to DIVX is not supported.
- For video file which contains multiple audio tracks, the default selected audio track may be different for each playback due to playbin2 implementation.
- Downmix multichannel audio may have problem (such as different volumes of left and right channels if downmix to 2 channels) as the ALSA-lib downmix algorithm will do downmixing with the default channel layout settings. You can configure asound.conf to change the layout settings.

8 Note

- In dual-display use case, if the primary and secondary displays do not have the same resolution, the secondary display shows the color strip. To solve this issue, the mfw_v4lsink property of the secondary display needs to be set with the actual width and height in the command line.
- The accurate seek mode may have a longer time delay.
- Because the stream container does not have the index table, seek is not supported.
- Fast rewind of audio only streams is not supported.

9 Getting Technical Support

If you have any questions or problems concerning this release, contact your Freescale representative, specifying the release version, board version, BSP version, and any other relevant information.

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Document Number: IMX6YMMRN
Rev. L3.10.17_1.0.0-ga
05/2014