RK3399 Multimedia Codec Benchmark

Ver. 1.2

April 26, 2018

Index

History

- 3 -

Date	Author	Version	Description
2015.4.17	Herman Chen	1.0	Initialize all descriptions
2017.12.21	Herman Chen	1.1	Add multi-channel H.264 decoding capability
2018.4.26	Herman Chen	1.2	Update supported max bitrate

- 4 -

Notice

All the data involved in this document will be in accordance with the development progress and possible changes without notice.

The features listed in this document may or may not be present in actual product, and may be subject to the third party licensing requirements.
Please contact Rockchip for actual product feature configurations and licensing requirements.

1. Image

1.1 Image Decoder

JPEG	
Image Codec	JFIF file format 1.02
Support Image Size	48x48pixels to 8176x8176pixles
Container	JPG, JPEG
Remarks	(1) Not Support Non-interleaved Scan (2) Software support SRGB JPEG (3) Software support Adobe RGB JPEG

BMP	
Image Codec	BMP
Support Image Size	No Restriction[1]
Container	BMP
Remarks	n.a.

GIF	
Image Codec	GIF
Support Image Size	No Restriction
Container	GIF
Remarks	n.a.

PNG	
Image Codec	PNG
Support Image Size	No Restriction
Container	PNG
Remarks	n.a.

WEBP	
Image Codec	WEBP
Support Image Size	No Restriction
Container	WEBP
Remark	n.a.

---

[1] Limited by actual memory available

1.2 Image Encoder

JPEG	
Image Codec	JPEG Baseline
Support Image Size	96x32pixels to 8176x8176pixles
Maximum Data Rate[2]	90Mpixels/Second
File Format	JFIF file format 1.02
Remarks	

---

[2] Ideal case

2. Audio

2.1 Audio Decoder

MPEG Audio	
Audio Codec	MPEG1/2/2.5 Audio Layer1/2/3
Channel	2
Bit rate	8kbps~320Kbps, CBR and VBR
Sampling rate	8KHZ~48KHz
File Format	MP1, MP2, MP3
Remarks	n.a

Windows Media Audio	
Audio Codec	WMA Version 4,4.1, 7, 8, 9, wmapro
Channel	2
Bit rate	8kbps~320Kbps
Sampling rate	8KHZ~48KHz
File Format	WMA
Remarks	Non-support WMA Pro、lossless and MBR

WAV Audio	
Audio Codec	MS-ADPCM, IMA-ADPCM, PCM
Channel	2
Bit rate	n.a
Sampling rate	8KHZ~48KHz
File Format	WAV
Remarks	Support 4bit MS-ADPCM,IMA-ADPCM

OGG Audio	
Audio Codec	Q1~ Q10
Channel	2
Bit rate	n.a
Sampling rate	8KHZ~48KHz
File Format	OGG, OGA
Remarks	n.a

FLAC Audio	
Audio Codec	Compress Level 0~8
Channel	2
Bit rate	n.a

Sampling rate	8KHZ~48KHz
File Format	FLAC
Remarks	n.a

AAC Audio	
Audio Codec	ADIF ,ATDS Header AAC-LC and AAC-HE, AAC-ELD
Channel	5.1
Bit rate	n.a
Sampling rate	8KHZ~48KHz
File Format	AAC, M4A
Remarks	n.a

AMR Audio	
Audio Codec	AMR-NB, AMR-WB
Channel	1
Bit rate	AMR-NB 4.75~12.2kbps@8kHz AMR-WB 6.60~23.85kbps@16kHz
Sampling rate	8KHZ, 16KHz
File Format	3GP
Remarks	n.a

MIDI Audio	
Audio Codec	MIDI Type 0 and 1, DLS version 1 and 2, XMF and Mobile XMF, RTTTL/RTX, OTA, iMelody
Channel	2
Bit rate	n.a
Sampling rate	n.a
File Format	XMF, MXMF, RTTTL, RTX, OTA, IMY
Remarks	n.a

2.2 Audio Encoder

AMR Audio	
Audio Codec	AMR-NB, AMR-WB
Channel	2
Bit rate	4.75kbps~12.2Kbps, CBR
Sampling rate	8KHZ, 16KHZ
Container	3GPP
Remarks	n.a

AAC Audio	
Audio Codec	AAC-ADTS-LC
Channel	1
Bit rate	4.75kbps~60Kbps, CBR
Sampling rate	8KHZ~44.1KHZ
Container	AAC, 3GPP, Mpeg2TS
Remarks	n.a

3. Video

3.1 Video Decoder

MPEG-1/2	
Video Codec	MPEG-1/2
Supported Image Size	48x48pixels to 1920x1088pixels
Maximum Frame Rate	30fps
Maximum Bit Rate[1]	80Mbps
File Format	DAT, MPG, VOB, TS
Remarks	● Support Field Coding

MPEG-4	
Video Codec	MPEG4
Supported Image Size	48x48pixels to 1920x1088pixels
Maximum Frame Rate	30fps
Maximum Bit Rate	38.4Mbps
File Format	AVI, MKV, MP4, MOV, 3GP
Remarks	● Not support MS MPEG4 v1/v2/v3 ● Not support GMC

H.264/AVC	
Video Codec	H.264
Supported Image Size	48x48pixels to 4096x2304pixels
Maximum Frame Rate	2304p@30fps / 1080P@30fps * 8
Maximum Bit Rate	50Mbps
File Format	AVI, MKV, MP4, MOV, 3GP, TS, FLV
Remarks	● Support Field Coding; ● Support MBAFF

MVC	
Video Codec	H.264 MVC
Supported Image Size	48x48pixels to 4096x2304pixels
Maximum Frame Rate	2304p@30fps,1080P@60fps
Maximum Bit Rate	50Mbps
File Format	MKV, TS
Remarks	● Support Stereo High Profile only

H.265/HEVC	
Video Codec	H.265/HEVC

Supported Image Size	64x64pixels to 4096x2304pixels
Maximum Frame Rate	2304p@60fps
Maximum Bit Rate	50Mbps
File Format	MKV, MP4, MOV, TS
Remarks	● Support Main Profile & Main10 Profile ● Support Tile & Slice

GOOGLE VP8	
Video Codec	VP8
Supported Image Size	48x48pixels to 1920x1088pixels
Maximum Frame Rate	30fps
Maximum Bit Rate	38.4 Mbps
File Format	WEBM,MKV
Remarks	

GOOGLE VP9	
Video Codec	VP9
Supported Image Size	48x48pixels to 4096x2304pixels
Maximum Frame Rate	2304p@60fps
Maximum Bit Rate	50 Mbps
File Format	WEBM,MKV
Remarks	

H.263	
Video Codec	H.263
Supported Image Size	SQCIF(128x96), QCIF(176x144), CIF(352x288),4CIF(704x576)
Maximum Frame Rate	30fps
Maximum Bit Rate	38.4Mbps
File Format	3GP, MOV, MP4
Remarks	● Not support H.263+

VC-1	
Video Codec	VC-1
Supported Image Size	48x48pixels to 1920x1088pixels
Maximum Frame Rate	30fps
Maximum Bit Rate	45Mbps
File Format	WMV, ASF, TS, MKV, AVI
Remarks	

MOTION JPEG	
Video Codec	MJPEG
Supported Image Size	48x48pixels to 1920x1088pixels

Maximum Frame Rate	30fps
Maximum Bit Rate	38.4Mbps
File Format	AVI
Remarks	

3.2 Video Encoder

H.264/AVC	
Video Codec	H.264
Supported Image Size	144x96pixels to 1920x1088pixels
Maximum Frame Rate	30fps
Maximum Bit Rate	20Mbps
File Format	MOV, 3GP
Remarks	● Not support MBAFF

VP8	
Video Codec	VP8
Supported Image Size	96x96pixels to 1920x1088pixels
Maximum Frame Rate	30fps
Maximum Bit Rate	10Mbps
File Format	WEBM
Remarks	

[1] Ideal case.