

RK3188

Multimedia Codec

Benchmark

Ver. 1.0

February, 20, 2013

Index

Index.....	- 2 -
History.....	- 3 -
Notice.....	- 4 -
1. Image.....	- 5 -
1.1 Image Decoder.....	- 5 -
1.2 Image Encoder.....	- 6 -
2. Audio.....	- 7 -
2.1 Audio Decoder.....	- 7 -
2.2 Audio Encoder.....	- 9 -
3. Video.....	- 10 -
3.1 Video Decoder.....	- 10 -
3.2 Video Encoder.....	- 13 -

History

Date	Author	Version	Description
2013.2.20	Chen Hengming	1.0	Modified from RK3066 Benchmark.

Rockchip

Notice

All the data involved in this paper will be in accordance with the development progress and possible changes.

Rockchip

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.

¹ Limited by actual memory available

1.2 Image Encoder

JPEG	
Image Codec	JPEG Baseline
Support Image Size	96x32pixels to 8176x8176pixles
Maximum Data Rate²	90Mpixels/Second
File Format	JFIF file format 1.02
Remarks	

Rockchip

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

APE Audio	
Audio Codec	APE Ver. 3.95, 3.97, 3.98, 3.99 normal and fast
Channel	2
Bit rate	n.a
Sampling rate	8KHZ~48KHz
File Format	APE
Remarks	n.a

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

Rockchip

2.2 Audio Encoder

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

AAC Audio	
Audio Codec	AAC-ADTS-LC
Channel	1
Bit rate	4.75kbps~12.2Kbps, CBR
Sampling rate	8KHZ
Container	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 Rate¹	80Mbps
Audio Codec²	MP2, MP3
File Format	DAT, MPG, VOB, TS
Remarks	

MPEG-4	
Video Codec	MPEG4
Supported Image Size	48x48pixels to 1920x1088pixels
Maximum Frame Rate	30fps
Maximum Bit Rate	38.4Mbps
Audio Codec	MP2, MP3, AC-3 ³ , AAC ⁴ , DTS ⁵ , PCM ⁶ , ADPCM ⁷
File Format	AVI, MKV, MP4, MOV, 3GP
Remarks	(1) Not support MS MPEG4 v1/v2/v3 (2) Not support GMC

DIVX	
Video Codec	DivX 3/4/5/6
Supported Image Size	48x48pixels to 1920x1088pixels
Maximum Frame Rate	30fps
Maximum Bit Rate	38.4Mbps
Audio Codec	MP2, MP3, AC-3 ⁸ , AAC ⁹ , DTS ¹⁰ , PCM ¹¹ , ADPCM ¹²
File Format	AVI, MKV, MP4, MOV, 3GP
Remarks	(1) Not support Data Partitioning (2) Not support GMC

REAL MEDIA	
Video Codec	Real Video 8/9/10
Supported Image Size	48x48pixels to 1920x1088pixels
Maximum Frame Rate	30fps
Maximum Bit Rate	38.4Mbps

Audio Codec	Cook, AAC
File Format	RM, RMVB
Remarks	(1) Not support Real G2.

H.264

Video Codec	H.264
Supported Image Size	48x48pixels to 1920x1088pixels
Maximum Frame Rate	30fps
Maximum Bit Rate	57.2Mbps
Audio Codec	MP2, MP3, AC-3, AAC, DTS, PCM ¹⁴ , ADPCM ¹⁵
File Format	AVI, MKV, MP4, MOV, 3GP, TS, FLV
Remarks	(1) Not support MBAFF

MVC

Video Codec	H.264 MVC
Supported Image Size	48x48pixels to 1920x1088pixels
Maximum Frame Rate	60fps
Maximum Bit Rate	38.4Mbps
Audio Codec	MP2, MP3, AC-3 ¹⁶ , AAC ¹⁷ , DTS ¹⁸ , PCM ¹⁹ , ADPCM ²⁰
File Format	AVI, MOV
Remarks	(1) Stereo High Profile only;

GOOGLE VP8

Video Codec	VP8
Supported Image Size	48x48pixels to 1920x1088pixels
Maximum Frame Rate	30fps
Maximum Bit Rate	38.4Mbps
Audio Codec	Ogg Vorbis
File Format	WEBM
Remarks	

VC-1

Video Codec	VC-1
Supported Image Size	48x48pixels to 1920x1088pixels
Maximum Frame Rate	30fps
Maximum Bit Rate	45Mbps
Audio Codec	MP2, MP3, AC-3 ²¹ , AAC ²² , DTS ²³ , WMA
File Format	WMV, ASF, TS, MKV, AVI
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
Audio Codec	MP3
File Format	3GP, MOV, MP4
Remarks	(1) Not support H.263+

SORENSEN SPARK

Video Codec	Sorenson Spark
Supported Image Size	48x48pixels to 1920x1088pixels
Maximum Frame Rate	30fps
Maximum Bit Rate	38.4Mbps
Audio Codec	MP3
File Format	FLV
Remarks	

ON2 VP6

Video Codec	VP6
Supported Image Size	48x48pixels to 1920x1088pixels
Maximum Frame Rate	30fps
Maximum Bit Rate	38.4Mbps
Audio Codec	MP2, MP3, AC-3 ²⁴ , AAC ²⁵ , DTS ²⁶ , PCM ²⁷ , ADPCM ²⁸
File Format	AVI, FLV
Remarks	

MOTION JPEG

Video Codec	MJPEG
Supported Image Size	48x48pixels to 1920x1088pixels
Maximum Frame Rate	30fps
Maximum Bit Rate	38.4Mbps
Audio Codec	MP2, MP3, AC-3 ²⁹ , AAC ³⁰ , DTS ³¹ , PCM ³² , ADPCM ³³
File Format	AVI, MOV
Remarks	

3.2 Video Encoder

H.264/AVC	
Video Codec	H.264
Supported Image Size	96x96pixels to 1920x1088pixels
Maximum Frame Rate	30fps
Maximum Bit Rate	20Mbps
Audio Codec	AMR-NB
File Format	MOV, 3GP
Remarks	(1) Not support MBAFF

¹ Ideal case.

² Related codec parameter is in accordance with the description in Chapter 2.1 Audio.

³ Maximum 6-channel decoding is supported in AAC.

⁴ Maximum 6-channel decoding is supported in AC-3.

⁵ Maximum 6-channel decoding is supported in DTS.

⁶ Support in AVI only.

⁷ Support in AVI only.

⁸ Maximum 6-channel decoding is supported in AAC

⁹ Maximum 6-channel decoding is supported in AC-3.

¹⁰ Maximum 6-channel decoding is supported in DTS.

¹¹ Support in AVI only.

¹² Support in AVI only.

¹⁴ Support in AVI only.

¹⁵ Support in AVI only.

¹⁶ Maximum 6-channel decoding is supported in AAC

¹⁷ Maximum 6-channel decoding is supported in AC-3.

¹⁸ Maximum 6-channel decoding is supported in DTS.

¹⁹ Support in AVI only.

²⁰ Support in AVI only.

²¹ Maximum 6-channel decoding is supported in AAC

²² Maximum 6-channel decoding is supported in AC-3.

²³ Maximum 6-channel decoding is supported in DTS.

²⁴ Maximum 6-channel decoding is supported in AAC

²⁵ Maximum 6-channel decoding is supported in AC-3.

²⁶ Maximum 6-channel decoding is supported in DTS.

²⁷ Support in AVI only.

²⁸ Support in AVI only.

²⁹ Maximum 6-channel decoding is supported in AAC

³⁰ Maximum 6-channel decoding is supported in AC-3.

³¹ Maximum 6-channel decoding is supported in DTS.

³² Support in AVI only.

³³ Support in AVI only.