

# RK3066

# Multimedia Codec

# Benchmark

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*Ver. 1.1*

June 29, 2012

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# History

Date	Author	Version	Description
2012.6.29	Jian Huan	1.0	Add MVC decoder Spec.
2012.6.29	Jian Huan	1.1	Remove DTS audio spec in Audio Decoder chapter; merge it to Video Decoder chapter.



## Notice

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

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# 1. Image

## 1.1 Image Decoder

JPEG	
Image Codec	JFIF file format 1.02
Support Image Size	48x48pixels to 8176x8176pixels
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 <sup>1</sup>
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.

<sup>1</sup> Limited by actual memory available

## 1.2 Image Encoder

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

<sup>2</sup> Ideal case

## 2. Audio

### 2.1 Audio Decoder

MPEG Audio	
Audio Codec	MPEG 1/2/2.5 Audio Layer1/2/3
Channel	2
Bit rate	8kbps~320Kbps, CBR and VBR
Sampling rate	8KHZ~48KHz
File Format	MP 1, 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

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<b>Bit rate</b>	n.a
<b>Sampling rate</b>	8KHZ~48KHz
<b>File Format</b>	OGG, OGA
<b>Remarks</b>	n.a

#### FLAC Audio

<b>Audio Codec</b>	Compress Level 0~8
<b>Channel</b>	2
<b>Bit rate</b>	n.a
<b>Sampling rate</b>	8KHZ~48KHz
<b>File Format</b>	FLAC
<b>Remarks</b>	n.a

#### AAC Audio

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



## 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 Rate <sup>1</sup>	80Mbps
Audio Codec <sup>2</sup>	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 <sup>3</sup> , AAC <sup>4</sup> , DTS <sup>5</sup> , PCM <sup>6</sup> , ADPCM <sup>7</sup>
File Format	AVI, MKV, MP4, MOV, 3GP
Remarks	(1) Not support MS MPEG4 v1/v2/v3 (2) Not support GMC
DMX	
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 <sup>8</sup> , AAC <sup>9</sup> , DTS <sup>10</sup> , PCM <sup>11</sup> , ADPCM <sup>12</sup>
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

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<b>Maximum Bit Rate</b>	38.4Mbps
<b>Audio Codec</b>	Cook, AAC
<b>File Format</b>	RM, RMVB
<b>Remarks</b>	(1) Not support Real G2.

#### H.264

<b>Video Codec</b>	H.264
<b>Supported Image Size</b>	48x48pixels to 1920x1088pixels
<b>Maximum Frame Rate</b>	30fps
<b>Maximum Bit Rate</b>	57.2Mbps
<b>Audio Codec</b>	MP2, MP3, AC-3, AAC, DTS, PCM <sup>13</sup> , ADPCM <sup>14</sup>
<b>File Format</b>	AVI, MKV, MP4, MOV, 3GP, TS, FLV
<b>Remarks</b>	(1) Not support MBAFF

#### MVC

<b>Video Codec</b>	H.264 MVC
<b>Supported Image Size</b>	48x48pixels to 1920x1088pixels
<b>Maximum Frame Rate</b>	60fps
<b>Maximum Bit Rate</b>	38.4Mbps
<b>Audio Codec</b>	MP2, MP3, AC-3 <sup>15</sup> , AAC <sup>16</sup> , DTS <sup>17</sup> , PCM <sup>18</sup> , ADPCM <sup>19</sup>
<b>File Format</b>	AVI, MOV
<b>Remarks</b>	(1) Stereo High Profile only;

#### GOOGLE VP8

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

#### VC-1

<b>Video Codec</b>	VC-1
<b>Supported Image Size</b>	48x48pixels to 1920x1088pixels
<b>Maximum Frame Rate</b>	30fps
<b>Maximum Bit Rate</b>	45Mbps
<b>Audio Codec</b>	MP2, MP3, AC-3 <sup>20</sup> , AAC <sup>21</sup> , DTS <sup>22</sup> , WMA
<b>File Format</b>	WMV, ASF, TS, MKV, AVI
<b>Remarks</b>	

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### H.263

<b>Video Codec</b>	H.263
<b>Supported Image Size</b>	SQCIF (128x96), QCIF (176x144), CIF (352x288), 4CIF (704x576)
<b>Maximum Frame Rate</b>	30fps
<b>Maximum Bit Rate</b>	38.4Mbps
<b>Audio Codec</b>	MP3
<b>File Format</b>	3GP, MOV, MP4
<b>Remarks</b>	(1) Not support H.263+

### SORENSEN SPARK

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

### ON2VP6

<b>Video Codec</b>	VP6
<b>Supported Image Size</b>	48x48pixels to 1920x1088pixels
<b>Maximum Frame Rate</b>	30fps
<b>Maximum Bit Rate</b>	38.4Mbps
<b>Audio Codec</b>	MP2, MP3, AC-3 <sup>23</sup> , AAC <sup>24</sup> , DTS <sup>25</sup> , PCM <sup>26</sup> , ADPCM <sup>27</sup>
<b>File Format</b>	AVI, FLV
<b>Remarks</b>	

### MOTION JPEG

<b>Video Codec</b>	MJPEG
<b>Supported Image Size</b>	48x48pixels to 1920x1088pixels
<b>Maximum Frame Rate</b>	30fps
<b>Maximum Bit Rate</b>	38.4Mbps
<b>Audio Codec</b>	MP2, MP3, AC-3 <sup>28</sup> , AAC <sup>29</sup> , DTS <sup>30</sup> , PCM <sup>31</sup> , ADPCM <sup>32</sup>
<b>File Format</b>	AVI, MOV
<b>Remarks</b>	

## 3.2 Video Encoder

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

<sup>1</sup> Ideal case.

<sup>2</sup> Related codec parameter is in accordance with the description in Chapter 2.1 Audio.

<sup>3</sup> Maximum 6-channel decoding is supported in AAC.

<sup>4</sup> Maximum 6-channel decoding is supported in AC-3.

<sup>5</sup> Maximum 6-channel decoding is supported in DTS.

<sup>6</sup> Support in AVI only.

<sup>7</sup> Support in AVI only.

<sup>8</sup> Maximum 6-channel decoding is supported in AAC

<sup>9</sup> Maximum 6-channel decoding is supported in AC-3.

<sup>10</sup> Maximum 6-channel decoding is supported in DTS.

<sup>11</sup> Support in AVI only.

<sup>12</sup> Support in AVI only.

<sup>13</sup> Support in AVI only.

<sup>14</sup> Support in AVI only.

<sup>15</sup> Maximum 6-channel decoding is supported in AAC

<sup>16</sup> Maximum 6-channel decoding is supported in AC-3.

<sup>17</sup> Maximum 6-channel decoding is supported in DTS.

<sup>18</sup> Support in AVI only.

<sup>19</sup> Support in AVI only.

<sup>20</sup> Maximum 6-channel decoding is supported in AAC

<sup>21</sup> Maximum 6-channel decoding is supported in AC-3.

<sup>22</sup> Maximum 6-channel decoding is supported in DTS.

<sup>23</sup> Maximum 6-channel decoding is supported in AAC

<sup>24</sup> Maximum 6-channel decoding is supported in AC-3.

<sup>25</sup> Maximum 6-channel decoding is supported in DTS.

<sup>26</sup> Support in AVI only.

<sup>27</sup> Support in AVI only.

<sup>28</sup> Maximum 6-channel decoding is supported in AAC

<sup>29</sup> Maximum 6-channel decoding is supported in AC-3.

<sup>30</sup> Maximum 6-channel decoding is supported in DTS.

<sup>31</sup> Support in AVI only.

<sup>32</sup> Support in AVI only.