

i.MX35 SDK Windows Embedded CE 6.0

Multimedia Framework

Release Notes

1 Introduction

This document contains important information about the package contents, and instructions for building Freescale components on an i.MX35 3-stack platform running Windows Embedded CE 6.0.

This document does not provide any details of the architecture or APIs in the codecs.

You should have a basic understanding of Microsoft DirectShow framework.

All features are believed to function correctly, except as noted in this document.

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2 Release Contents

2.1 SDK Documentation Package

The documentation package provided with this release includes all of the documents in the documentation package.

Table 1. Document Package

Document Package	Descriptions
MX35_MMFMWK_WINCE_DOCKIT.zip	Documentation set

The compressed file includes all of the related documents in the document package.

Table 2. Document Contents

Document Name	Descriptions
imx35_WinCE60_MMFW_RN	Release notes
imx35_WinCE60_MMFW_UG	SDK user's guide

2.2 SDK Software Packages

Multimedia framework Software Development Kit (SDK) software packages are the collection of both Freescale developed codec and 3-rd party codec. Freescale developed codec will be archived as the installer package (in .exe files). And the 3-rd party codec are archive as SDK patches (in .zip files).

Table 3. Software Packages Contents

Document Name	Descriptions
WCE600_MX35-PDK1_7_09.12.01_SDK_MM.exe	SDK installer with framework source codes, framework binaries, core lib binaries, core lib header files and support documents
WCE600_MX35-PDK1_7_09.12.01_SDK_MM_AC3.zip ¹	Patches for AC3 audio decoder
WCE600_MX35-PDK1_7_09.12.01_SDK_MM_DIVX.zip ²	Patches for DivX video decoder

¹ AC3 audio decoder has license limitation

² DivX video decoder has license limitation

3 System Requirements

3.1 Hardware Requirements

- MX35 3-Stack Rev 2.1

3.2 Software requirements

- Build machine should be running Microsoft Windows XP.
- Build machine should have the following installed:
 - Windows Embedded CE 6.0 with Platform Builder
 - Windows Embedded CE 6.0 BSP for i.MX35 3-Stack

4 What is new in this version

This section describes the new changes in this release (version 5.10.1), including new features and defect fixes.

4.1 New Features and Enhancements

The following table describes the new features and enhancements since last release.

Table 4. New Features and Enhancements

New features and enhancements	Descriptions
New feature of parser	Support swot audio format in mp4 parser; Support .m4b QuickTime audio book format in mp4 parser
Bug Fixings	See Defect Fixes for details

4.2 Defect Fixes

Table 5 describes the issues that have been resolved since the previous release.

Table 5. Defect Fixes List

NO.	CR ID	Headline
1	ENGR00116633	[WINCE_MP3] when play a special mp3, the player loading time becomes very long > 30s
2	ENGR00117442	[WMX35_SDK]BMP&GIF: All BMP and GIF vectors can not be played.
3	ENGR00117505	[WMX35_SDK] MPEG2Dec: Freeze at the end of the stream with noise for some MpgMpegSS, and it result in system crash.
4	ENGR00117320	[WMX35_SDK]MPEG2Dec: Stop at beginning and always keep "opening" state

5 Supported Features

Table 6~Table 9 identifies the features provided by this release.

Table 6. Audio Features List

Feature		Profile	Channel	Sample Rate (Hz)	Bit rate (bps)	
Audio decoding	AAC	MPEG-2 and MPEG-4 audio low complexity (LC) profile	<=5.1	8K~96K	8K~256K	
	aacPlus	MPEG-2 and MPEG-4 audio low complexity (LC) profile HE-AAC 1.2 HE-AAC 2.0	Mono / Stereo	8K~96K	8K~384K (Mono) 16K~768K (Stereo)	
	AC3	Dolby AC3	<=5.1	<=48K	32K~640K	
	BSAC	MPEG-2 and MPEG-4 audio				
	MP3	MPEG-1 Audio Layer I				
		MPEG-1 Audio Layer II				
		MPEG-1 Audio Layer III				
	WMA Standard	WMA V10 Standard L1 profile				
		WMA V10 Standard L2 profile				
		WMA V10 Standard L3 profile				
	WMA Professional	WMA V10 Professional M0a profile				
		WMA V10 Professional M0b profile				
		WMA V10 Professional M1 profile	<=5.1	<=48K	<=384K	
		WMA V10 Professional M2 profile	<=5.1	<=96K	<=768K	
WMA Lossless	WMA V10 Professional M3 profile	<=7.1	<=96K	<=1.5M		
	WMA V10 Lossless N1 profile					
	WMA V10 Lossless N2 profile	<=5.1	<=96K	<=3M		
Audio encoding	MP3	WMA V10 Lossless N3 profile	<=7.1	<=96K	<=3M	
		MPEG-1 Audio Layer III	Mono / Stereo	32/ 44.1/ 48K	8K~320K	
		WMA V8 L1 profile	Mono / Stereo	44.1K	64K~161K	
	WMA	WMA V8 L2 profile	Mono / Stereo	<=48K	<=161K	
WMA V8 L3 profile		Mono / Stereo	<=48K	<=385K		
Audio post-processing	Parametric EQ	Support profile such as Base Boost, Classic , etc	Mono / Stereo	<=96K		
	Down mixer	Support up to 7.1 to 2 channel down mixing	<=7.1	<=48K		
	ASRC	Support up to 2 channel audio 8~96KHz to 32~96KHz sample rate convention	Mono / Stereo	<=96K		
S/PDIF Audio	TX	Supports PCM /non-PCM (AC3) transfer over S/PDIF	Stereo	<=48K		
	RX	Supports PCM / non-PCM (AC3) auto-detection receive over S/PDIF	Stereo	<=48K		

Table 7. Video Features List

Feature		Profile	Max Resolution	Min Resolution
Video decoding	DivX	Supports DivX 3/4/5/6, Home-Theater profile	352 x 288@30fps	16 x 16
	H.264	Supports MPEG-4, Part 10 video H.264 Baseline Profile (BP) decoding	352 x 288@30fps	16 x 16
	MPEG2	Supports MPEG-1 video	352 x 288@30fps	16 x 16

		Supports MPEG-2 video main profile (MP) @ main level (ML)		
	MPEG4	Supports MPEG-4 Part 2 video simple / advanced simple profile (SP/ASP@L5)	352 x 288@30fps	16 x 16
	VC-1	Supports Windows Media Video compatible with WMV1 / WMV2 / WMV3	352 x 288@30fps	16 x 16
	WMV	Supports VC-1 simple and main profile (SP/MP)	352 x 288@30fps	16 x 16

Table 8. Speech Features List

Feature	Profile	Sample Rate (Hz)	Bit rate (bps)
Speech decoding / encoding	SBC	SBC encoder	<=48K
	G.726	G.726 decoder/encoder	8K 16/24/32/40K

Table 9. Image Features List

Feature	Profile	Max Resolution	Min Resolution
Image decoding	BMP	Supports BMP	65535 x 65535 ³ 1 x 1
	GIF	Supports GIF 87a, 89a	65535 x 65535 ³ 1 x 1
	JPEG	Supports JPEG baseline/progressive mode	65535 x 65535 ³ 1 x 1
	PNG	Supports PNG V1.0	65535 x 65535 ³ 1 x 1
Image encoding	JPEG	Supports JPEG baseline/progressive mode	65535 x 65535 1 x 1

Table 10 identifies the feature matrix for audio/video playback.

Table 10. Playback Feature Matrix

Filename Extension	Container	Video Codec	Audio Codec	Image Codec
.mp3	MPEG-1 Audio Layer III	N/A	MP3	N/A
.wma	Advanced Systems Format	N/A	WMA	N/A
.aac		N/A	AAC LC, aacPlus	N/A
.ac3		N/A	AC3	N/A
.asf .wmv	Advanced Systems Format	VC1	WMA	N/A
.mpg	MPEG-2 PS	MPEG-2	MP3, AC3, LPCM	N/A
	MPEG-2 PES	MPEG-2	MP3, AC3, LPCM	N/A
	MPEG-2 TS	MPEG-2	MP3, AC3, LPCM	N/A
	MPEG-1 SS	MPEG-2	MP3	N/A
.vob	MPEG2 PS	MPEG-2	AC3, LPCM	N/A

³ Actual supported maximum resolution depends on the system memory allocation on the i.MX35 3-stack platform

.mp4 .mov .3gp	MPEG-4 Part 14	H.264, MPEG4	AAC, MP3	N/A
.avi	Audio Video Interleave	H.264, MPEG4, DivX	AAC, MP3	N/A
.m4a	MPEG-4 Part 14	N/A	AAC, MP3	N/A
.m4b	MPEG-4 Part 14	N/A	AAC	N/A
.m4v	MPEG-4 Part 14	H.264, MPEG4	N/A	N/A
.bmp	N/A	N/A	N/A	BMP
.gif	N/A	N/A	N/A	GIF 87a & 89a
.jpg	N/A	N/A	N/A	JPEG baseline and progressive mode
.png	N/A	N/A	N/A	PNG v1.0

Table 11 identifies the version number for each component in this release.

Table 11. Component Versions

Components		Version
Audio codecs	AAC decoder	3.04.0
	AACPlus decoder	3.05.0
	AC3 decoder	2.06.0
	BSAC decoder	1.06.0
	MP3 decoder	2.05.0
	MP3 encoder	2.00.0
	WMA decoder	3.00.0
	WMA encoder	3.01.0
Audio post-processing	PEQ post-processing	1.07.0
	Downmixer	1.02.0
Speech codecs	SBC Encoder	1.04.0
	G.726 Encoder/Decoder	2.01.0
Video codecs	DivX decoder	2.01.1
	H.264 decoder	2.06.1
	MPEG2 decoder	2.01.1
	MPEG4 decoder	1.01.0
	WMV7/8 decoder	0.01.1
	WMV9 decoder	2.02.3
Video post-process	Deinterlacer	1.01.0
Parsers	MP4 Parser	5.15.2
	MPEG demuxer	0.03.0
Image codecs	BMP decoder	0.03.0
	GIF decoder	0.03.0
	JPEG decoder	0.05.0
	JPEG encoder	0.01.0
	PNG decoder	0.04.0

6 Know Problems

This section will cover known problem with this release.

6.1 Known Defects

Table 12 identifies the engineering change requests that have not been resolved.

Table 12. Known Defects List

NO.	CR ID	Headline
1	ENGR117563	[WMX35_CODEEC] MPEGDec: Can not open some files with error message pops.
2	ENGR107576	[WMX35_CODEEC] H264Dec: There is some obvious veins and color block during change scene for 1 stream.
3	ENGR113344	[WMX35_SDK] MPEG4Dec / DivxDec / VC1Dec: Sometimes can not reaction quickly after seek, video freeze about 2~5s.
4	ENGR113428	[WMX35_SDK] Video: Repeat play stops if let it repeat for overnight.
5	ENGR101329	[WMX35_CODEEC]: WMVMP: repeat play long stream overnight, pop up "Program Memory is low", and system halt.
6	ENGR113345	[WMX35_SDK] MPEG4Dec: Cannot open 7 MPEG4 clips with error 0x80040216 and 0x80040218.

6.2 Limitations/Issues

Table 13 identifies the limitations of each component.

Table 13. Limitations/Issues List

Item	Description
Audio feature limitations	AAC/aacPlus ADIF File format decoding does not support trick mode seeking, so the Windows CE media player does not display a time progress bar
	AAC/aacPlus decoder only support up to 2 channel audio playback
	WMA codec supports WMA10 Standard, Professional and Lossless decoding. Due to the Windows CE player limitation, it does not support multiple channel (>2) WMA lossless streams playback
	Playback AAC, aacPlus and MP3 in the Windows CE player does not support Fast Forward or Fast Backward
	Playback WMA in the Windows CE media player does not support Fast Backward, but only supports 2x Fast Forward
Video feature limitations	Software video decoders have a performance limitation: in general, on an i.MX35 3-stack platform, a video of up to CIF (352 x 288) can be run smoothly
	Due to the limitations of the current version of the MPEG de-multiplexer, it does not support seeking in trick mode
Image feature limitations	Although image decoders have no limitation on image size, the Windows Embedded CE OS system memory allocation is limited on the i.MX35 3-stack platform. Therefore, the image test applications may fail to allocate the memory for large size image decode and display. In general, the image of a size less than 1474560 pixels can be decoded and displayed successfully

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