

i.MX31 Windows CE 5.0 and 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.MX31 3-stack platform running Windows CE 5.0 or 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.

Contents

1	Introduction	1
2	Release Contents	2
2.1	SDK Documentation Package	2
2.2	SDK Software Packages.....	2
3	System Requirements.....	3
3.1	Hardware Requirements.....	3
3.2	Software requirements.....	3
4	Supported Features	4
5	Component Versions	6
6	Resolved Issues.....	7
7	Assumptions and Known Issues	7
8	Limitations of this Release	8
8.1	Audio.....	8
8.2	Video.....	8
8.3	Image.....	8
8.4	Demo Version Limitation.....	8



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
MX31_MMSDK_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
RN_FSL_MMFMWK_WINCE_MX31SDK	Release notes
MX31_WinCE_MMFMWK_SDK_UserGuide	SDK user's guide
WinCE_MMFMWK_SDK_Patches_UserGuide	SDK patches user's guide

2.2 SDK Software Packages

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

Table 3. Software Packages Contents

Document Name	Descriptions
FSL-MMFMWK-iMX313DS-05.05.06-Demo.exe	SDK installer with demo version of framework binaries and support documents
FSL-MMFMWK-iMX313DS-05.05.06.exe	SDK installer with framework source codes, framework binaries, core lib binaries, core lib header files and support documents
FSL_WINCE_DSHOW_AC3_FULL.zip ¹	Patches for AC3 audio decoder
FSL_WINCE_DSHOW_DIVX_SW_FULL.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

- MX31 3-Stack Rev-C

3.2 Software requirements

- Build machine should be running Microsoft Windows XP.
- Build machine should have the following installed:
 - Windows CE 5.0 or Windows Embedded CE 6.0 with Platform Builder
 - i.MX31 3-stack Windows CE 5.0 BSP for PDK1.2 or above
 - i.MX31 3-stack Windows Embedded CE 6.0 BSP for PDK1.2 or above

4 Supported Features

Table 4 identifies the features provided by this release.

Table 4. Features

Feature		Description	Demo Version	Full Version ³
Audio decoding	AAC	MPEG-2 and MPEG-4 audio low complexity (LC) profile	Yes	Yes
	aacPlus	MPEG-2 and MPEG-4 audio low complexity (LC) profile HE-AAC 1.2 HE-AAC 2.0	Yes	Yes
	AC3	Dolby AC3	No	Yes
	MP3	MPEG-1 Audio Layer I MPEG-1 Audio Layer II MPEG-1 Audio Layer III	Yes	Yes
	WMA	WMA V10 Standard L1, L2 and L3 profile WMA V10 Professional M0a/b, M1, M2 and M3 profiles WMA V10 Lossless N1 and N2 profiles	Yes	Yes
Audio encoding	MP3	MPEG-1 Audio Layer I MPEG-1 Audio Layer II MPEG-1 Audio Layer III	Yes	Yes
	WMA	WMA V8 L1, L2 and L3 profiles	Yes	Yes
Speech encoding	SBC		Yes	Yes
Audio post-processing	Parametric EQ	Support profile such as Base Boost, Classic , etc	Yes	Yes
Image decoding	BMP	Supports BMP	Yes	Yes
	GIF	Supports GIF 87a, 89a	Yes	Yes
	JPEG	Supports JPEG baseline and progressive mode	Yes	Yes
	PNG	Supports PNG V1.0	Yes	Yes
Image encoding	JPEG	Supports JPEG baseline and progressive mode	Yes	Yes
Video decoding	DivX	Supports DivX 3/4/5/6	No	Yes
	H.264	Supports MPEG-4, Part 10 video H.264 Baseline Profile (BP) decoding	Yes	Yes
	MPEG2	Supports MPEG-1 video Supports MPEG-2 video main profile (MP) @ main level (ML)	Yes	Yes
	MPEG4	Supports MPEG-4 Part 2 video Simple Profile (SP) @ level 5	Yes	Yes
	WMV	Supports Windows Media Video compatible with WMV1 / WMV2 / WMV3	Yes	Yes
	VC-1	Supports up to VC-1 main profile (MP)	Yes	Yes
Video post-processing	Deinterlacer		No	Yes

Table 5 identifies the feature matrix for audio/video playback.

Table 5. Playback Feature Matrix

Filename Extension	Container	Video Codec	Audio Codec	Image Codec
--------------------	-----------	-------------	-------------	-------------

³ Full version means that it need to install all of the license limited codec packages

.mp3	MPEG-1 Audio Layer III	N/A	MPEG-1 Audio Layer III	N/A
.wma	Advanced Systems Format	N/A	WMA standard / professional / lossless	N/A
.aac		N/A	MPEG-2 and MPEG-4 audio 2-channel low complexity (LC) profile	N/A
.ac3		N/A	AC3	N/A
.asf .wmv	Advanced Systems Format	VC1	WMA standard / professional / lossless	N/A
.mpg	MPEG-2 PS	MPEG-2, MPEG-1	MPEG-1 Layer 1, MPEG-1 Layer 2, MPEG-1 Layer 3, MPEG-2 Layer 2, AC3, LPCM	N/A
	MPEG-2 PES	MPEG-2, MPEG-1	MPEG-1 Layer 1, MPEG-1 Layer 2, MPEG-1 Layer 3, MPEG-2 Layer 2, AC3, LPCM	N/A
	MPEG-1 SS	MPEG-1	MPEG-1 Layer 1, MPEG-1 Layer 2, MPEG-1 Layer 3, MPEG-2 Layer 2	N/A
.vob	MPEG2 PS	MPEG-2	AC3, LPCM	N/A
.mp4 .mov .3gp	MPEG-4 Part 14	MPEG-4 Part 10 MPEG-4 Part 2	AAC (MPEG-2 Part 7) MP3	N/A
.avi	Audio Video Interleave	MPEG-4 Part 10 MPEG-4 Part 2	AAC (MPEG-2 Part 7) MP3	N/A
.m4a	MPEG-4 Part 14	N/A	AAC (MPEG-2 Part 7) MP3	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

5 Component Versions

Table 6 identifies the version number for each component in this release.

Table 6. Component Versions

Components		Version
Audio codecs	AAC decoder	1.14.0
	AACPlus decoder	2.01.0
	AC3 decoder	2.03.0
	MP3 decoder	1.17.0
	MP3 encoder	1.09.0
	WMA decoder	2.20.0
	WMA encoder	2.04.0
Audio post-processing	PEQ post-processing	1.05.0
Speech codecs	SBC Encoder	1.04.0
Video codecs	DivX decoder	2.01.0
	H.264 decoder	2.04.0
	MPEG2 decoder	2.01.0
	MPEG4 decoder	2.02.0
	WMV7/8 decoder	0.01.0
	WMV9 decoder	2.02.1
Video post-process	Deinterlacer	1.01.0
Parsers	MP4 Parser	5.12.4
	MPEG demuxer	0.03.0
Image codecs	BMP decoder	0.02.0
	GIF decoder	0.03.0
	JPEG decoder	0.03.0
	JPEG encoder	0.01.0
	PNG decoder	0.01.0

6 Resolved Issues

Table 7 describes the issues that have been resolved since the previous release.

Table 7. Resolved Issues

NO.	CR ID	Headline
1	ENGR98760	[MX31_WINCE] AC3: Does not auto stop when there is an error when decoding.
2	ENGR101249	[WMX31_CODEEC]VOB (MPEG2+AC3): Audio and video stop at about 12s. of playing the stream
3	ENGR101997	[WMX31_CODEEC]MP3Dec: System will crash when playing some streams.
4	ENGR108784	[WMX31_CODEEC] VC1Dec: System crash if FB for one stream.
5	ENGR106045	[WMX31_CODEEC] AACLCDec: The audio starts at 3sec instead of beginning, and the time pauses at 11sec for a while, but the audio is normal.

7 Assumptions and Known Issues

Table 8 identifies the engineering change requests that have not been resolved.

Table 8. Known Issues

NO.	CR ID	Headline
1	ENGR108783	[WMX31_CODEEC] MPEG2Dec: Video is not so fluent for one stream.
2	ENGR108767	[WMX31_CODEEC] AACDec: there are 'zi~zi" noise all along with following streams.
3	ENGR107489	[WMX31_CODEEC]WMALosslessDec: Audio stutters sometimes when playing the stream.
4	ENGR107025	[WMX31_CODEEC] WMAProDec: There is z~Zz~ noise all through some stream.
5	ENGR106052	[WMX31_CODEEC] AACPlusDec: These are some noise all along when playing the stream.
6	ENGR105828	[WMX31_CODEEC] DivxDec: It plays as fast forward when open to play for 1 stream.
7	ENGR103670	[WMX31_CODEEC] DivxDec: Audio disappear after 18s if normal playback the following 1 stream.
8	ENGR101310	[WMX31_CODEEC] WMV: The 9h long file shouldn't stop in the midway.
9	ENGR101307	[WMX31_CODEEC] AVI (H264+MP3): There's noise at the beginning of the stream.
10	ENGR101306	[WMX31_CODEEC] AVI (MPEG4+mp3): There's "zz~" noise when playing the stream.
11	ENGR101302	[WMX31_CODEEC] AVI (MPEG4+mp3): AV not sync when drawing the slide bar .
12	ENGR101301	[WMX31_CODEEC]MPEG4Enc: Create a only 132KB stream, and can't open.
13	ENGR103662	[WMX31_CODEEC]WMAProDec: Play two WMAPro streams, an error will pop up

8 Limitations of this Release

This section describes the limits of each component.

8.1 Audio

- 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.
- 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.

8.2 Video

- Software video decoders have a performance limitation: in general, on a i.MX31 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 demultiplexer, it does not support seeking in trick mode.

8.3 Image

Although image decoders have no limitation on image size, the Windows Embedded CE OS system memory allocation is limited on the i.MX31 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.

NOTE

For descriptions of the audio, video, and image encoder command line options, see the *i.MX31 PDK 1.4 Windows CE 5.0 and i.MX31 PDK 1.5 Windows Embedded CE 6.0 Multimedia Framework User's Guide*.

8.4 Demo Version Limitation

There is a time limitation in the demo version of the core codec.

- Audio core decoder allows a 5-minute playback length, which is an accurate time.
- Video core decoder allows a 9000-frame playback length, which estimates a 5-minute time with frame rate at 30fps. This method is required because some video (such as H.264) has no frame rate information in the elementary stream.

To unify the playback time limitation for all of the use cases, video/audio wrapper implements a 2-minute playback time when the core decoder is detected as the demo version.

- Video/audio playback: The video wrapper issues an EOF signal to the player upon a 2-minute playback, so the playback stops.
- Audio only playback: Because the audio wrapper adopts the DMO type, it does not issue an EOF signal, so it mutes the audio output after a 2-minute playback, except WMA.

There is currently no demo version for image encoders/decoders.

How to Reach Us:

Home Page:

www.freescale.com

Web Support:

<http://www.freescale.com/support>

USA/Europe or Locations Not Listed:

Freescale Semiconductor
Technical Information Center, EL516
2100 East Elliot Road
Tempe, Arizona 85284
+1-800-521-6274 or +1-480-768-2130
www.freescale.com/support

Europe, Middle East, and Africa:

Freescale Halbleiter Deutschland GmbH
Technical Information Center
Schatzbogen 7
81829 Muenchen, Germany
+44 1296 380 456 (English)
+46 8 52200080 (English)
+49 89 92103 559 (German)
+33 1 69 35 48 48 (French)
www.freescale.com/support

Japan:

Freescale Semiconductor Japan Ltd.
Headquarters
ARCO Tower 15F
1-8-1, Shimo-Meguro, Meguro-ku,
Tokyo 153-0064, Japan
0120 191014 or +81 3 5437 9125
support.japan@freescale.com

Asia/Pacific:

Freescale Semiconductor China Ltd.
Exchange Building 23F
No. 118 Jianguo Road
Chaoyang District
Beijing 100022
China
+86 010 5879 8000
support.asia@freescale.com

For Literature Requests Only:

Freescale Semiconductor Literature Distribution Center
P.O. Box 5405
Denver, Colorado 80217
1-800-441-2447 or 303-675-2140
Fax: 303-675-2150
LDCForFreescaleSemiconductor@hibbertgroup.com

Information in this document is provided solely to enable system and software implementers to use Freescale Semiconductor products. There are no express or implied copyright licenses granted hereunder to design or fabricate any integrated circuits or integrated circuits based on the information in this document.

Freescale Semiconductor reserves the right to make changes without further notice to any products herein. Freescale Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Freescale Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters that may be provided in Freescale Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals", must be validated for each customer application by customer's technical experts. Freescale Semiconductor does not convey any license under its patent rights nor the rights of others. Freescale Semiconductor products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Freescale Semiconductor product could create a situation where personal injury or death may occur. Should Buyer purchase or use Freescale Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold Freescale Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Freescale Semiconductor was negligent regarding the design or manufacture of the part.

Freescale and the Freescale logo are trademarks or registered trademarks of Freescale Semiconductor, Inc. in the U.S. and other countries. All other product or service names are the property of their respective owners. Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation.

© Freescale Semiconductor, Inc. 2008 -2009. All rights reserved.

