



1 Introduction

The purpose of this sample is to demonstrate how to build and execute a simple video transcoder using the AMD Media Framework (AMF). The sample decodes H.264 elementary content, resizes the decoded raw video, and re-encodes the decoded raw video to generate a compressed H.264 Elementary stream.

2 Using the sample

2.1 Location `$<installDirectory>\samples\amf\simpleTranscoder\`

2.2 Contents **Package Contents**

Folder:

`$<installDirectory>\samples\amf\simpleTranscoder\src\`

File name	Description
SimpleTranscoder.cpp	Source file for Simple Transcoder application

Folder:

`$<installDirectory>\samples\amf\simpleTranscoder\build\windows\`

File name	Description
SimpleTranscoderVs10.sln	Microsoft Visual Studio 10 solution file
SimpleTranscoderVs10.vcxproj	Microsoft Visual Studio 10 project file
SimpleTranscoderVs10.vcxproj.filter	Microsoft Visual Studio 10 project filter file
SimpleTranscoderVs12.sln	Microsoft Visual Studio 12 project solution file
SimpleTranscoderVs12.vcxproj	Microsoft Visual Studio 12 project file
SimpleTranscoderVs12.vcxproj.filter	Microsoft Visual Studio 12 project filter file

Folder:

`$<installDirectory>\samples\amf\simpleTranscoder\docs\`

File name	Description
MediaSDK_AMF_simpleTranscoder.pdf	Sample documentation

2.3 Compile

1. Ensure that the following tools and SDKs are present:
 - Microsoft Visual Studio 2010 or 2012
If Windows Software Development Kit (SDK) is not installed, install it from <http://msdn.microsoft.com/en-us/library/windows/desktop/hh852363.aspx>.
2. Open one of the following solution files:
 - `$<installDirectory>\samples\amf\simpleTranscoder\build\windows\SimpleTranscoderVs12.sln`
 - `$<installDirectory>\samples\amf\simpleTranscoder\build\windows\SimpleTranscoderVs10.sln`
3. Build the sample:
 - Open the `SimpleTranscoderVs10.sln` solution file with Microsoft Visual Studio 2010 Professional Edition or the `SimpleTranscoderVs12.sln` solution file with Microsoft Visual Studio 2012 Professional Edition.
 - To build all the solutions, select `Build > Build Solution`.
 - The executable `simpleTranscoder.exe` is created in the following folders for 32-bit builds and 64-bit builds:
`$<installDirectory>\samples\amf\simpleTranscoder\bin\x86\`
`$<installDirectory>\samples\amf\simpleTranscoder\bin\x86_64\`
 - Depending on the build (i.e. 32-bit or 64-bit), the custom build step copies the appropriate `.dlls` file from the `$<installDirectory>\dll\amf\` folder into the relevant `\bin\` directory.

3 How to Run

The sample can be executed on an AMD platform that includes the UVD and VCE hardware blocks.

On the command prompt, change to the directory that contains the executable, and execute the following command:

```
simpleTranscoder.exe <InputFile> <BufferMemoryType> <OutputFile>
```

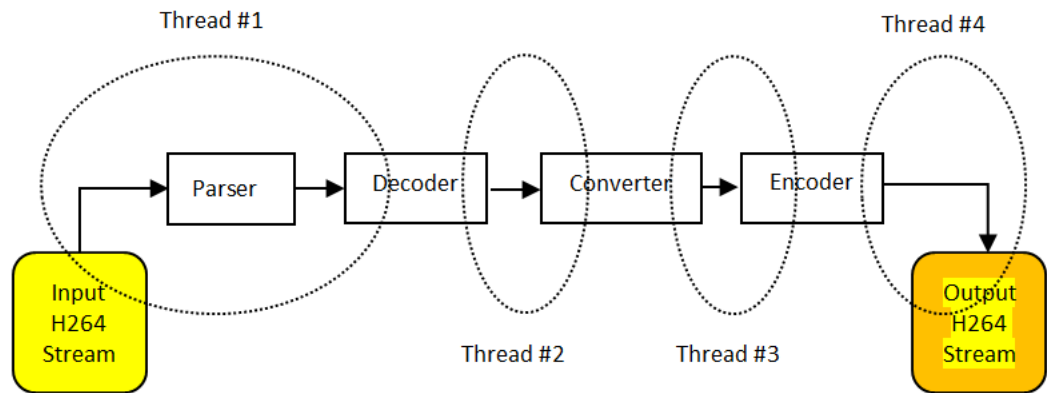
InputFile: Specify the name of the input H.264 elementary stream

BufferMemoryType: Specify the buffer memory type, either DX9 or DX11

OutputFile: Specify the name of the output H.264 elementary stream

4 Implementation Details

The sample implements the following transcoding topology:



The data in the transcode pipeline flows through the following processing elements:

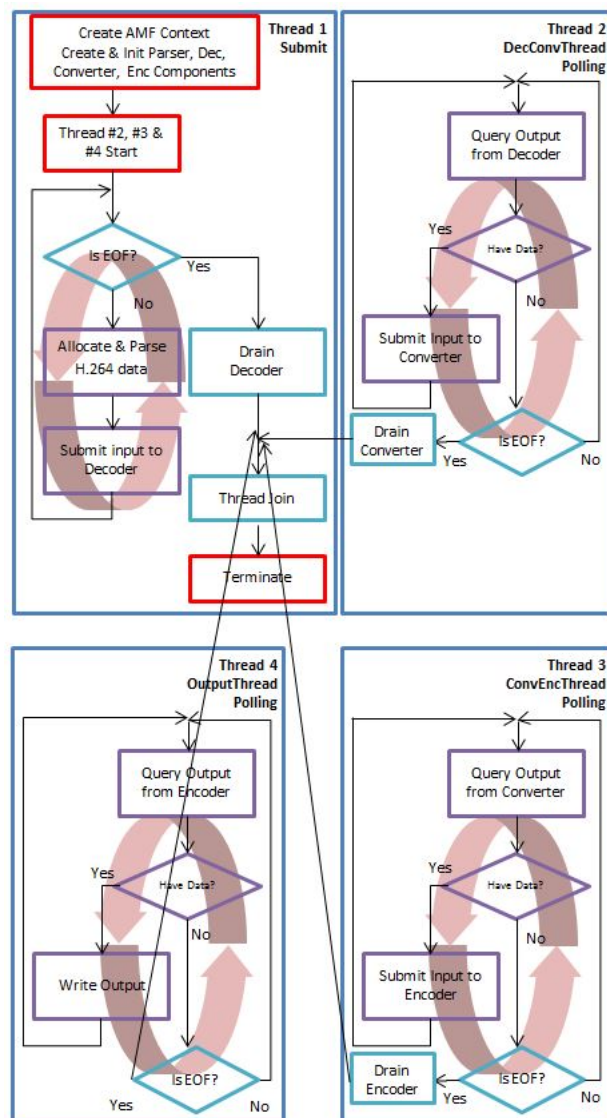
- **Parser:** The H.264 elementary stream data is first read by the parser which finds the SPS & PPS, finds the NALU unit, and populates the data structures which are fed to the H.264 Decoder.
- **Decoder:** Hardware-accelerated (UVD) H.264 Video Decoder. Decodes the input content to generate NV12 frames.
- **Converter:** Resizes the input to 1920x1080 .
- **Encoder:** Hardware-accelerated (VCE) H.264 Video Encoding. Encodes the input content to generate compressed H.264 Elementary stream.

Parameter Name	Description	Value
widthOut	Resized output width	1920
heightOut	Resized output height	1080
frameRateOut	Encoding Frame Rate	30
bitRateOut	Encoding Bitrate	1000000

The sample prints the following performance parameters:

- Latency in ms
- Average transcoding time in ms / frame
- Average time in ms to write one transcoded frame into file

The sample is constructed using native AMF APIs executing over four threads, as shown in the following figure.



5 Supported formats

The following file formats are supported:

- Video transcoders: H.264
- Output: H.264 compressed elementary stream

6 Known Limitations

The sample is currently supported on the following platforms:

- Windows 7 (DirectX 9)
- Windows 8.1 (DirectX 9 and DirectX 11.1)

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