SAMPLE

Multi Batch Transcoder

1 Introduction

The purpose of this sample is to demonstrate how to build and execute multiple batch transcoding sessions of H.264 elementary streams using AMD Media Framework (AMF). Each of these transcoding sessions is executed on user-specified devices. In this sample, each session's decoded output is resized to three different resolutions (640x480, 1280x720 and 1920x1080) and re-encoded to H.264.

2 Using the sample

2.1 Location

`$<installDirectory>\samples\amf\multiBatchTranscoder\`

2.2 Contents

Package Contents

Folder:
`$<installDirectory>\samples\amf\multiBatchTranscoder\src\`

File name	Description
`MultiBatchTranscoder.cpp`	Source file for Multi Batch Transcoder application

Folder:
`$<installDirectory>\samples\amf\multiBatchTranscoder\build\windows\`

File name	Description
`MultiBatchTranscoderVs10.sln`	Microsoft Visual Studio 10 solution file
`MultiBatchTranscoderVs10.vcxproj`	Microsoft Visual Studio 10 project file
`MultiBatchTranscoderVs10.vcxproj.filters`	Microsoft Visual Studio 10 project filter file
`MultiBatchTranscoderVs12.sln`	Microsoft Visual Studio 12 project solution file
`MultiBatchTranscoderVs12.vcxproj`	Microsoft Visual Studio 12 project file
`MultiBatchTranscoderVs12.vcxproj.filters`	Microsoft Visual Studio 12 project filter file

Folder:
`$<installDirectory>\samples\amf\multiBatchTranscoder\config\`

File name	Description
`exampleConfig.cfg`	Sample configuration file

Folder:
$<*installDirectory*>\samples\amf\multiBatchTranscoder\docs\

File name	Description
MediaSDK_AMF_multiBatchTranscoder.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:
   - `$<installDirectory>\samples\amf\multiBatchTranscoder\build\windows\MultiBatchTranscoderVs12.sln`
   - `$<installDirectory>\samples\amf\multiBatchTranscoder\build\windows\MultiBatchTranscoderVs10.sln`
3. Build the sample:
   - Open the `MultiBatchTranscoderVs10.sln` solution file with Microsoft Visual Studio 2010 Professional Edition or the `MultiBatchTranscoderVs12.sln` solution file with Microsoft Visual Studio 2012 Professional Edition.
   - To build all the solutions, select `Build > Build Solution`.
   - The executable `multiBatchTranscoder.exe` is created in the following folders for 32-bit builds and 64-bit builds:
     `$<installDirectory>\samples\amf\multiBatchTranscoder\bin\x86\`
     `$<installDirectory>\samples\amf\multiBatchTranscoder\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:
`multiBatchTranscoder.exe <ConfigFile> <MemoryType>`

ConfigFile: Specify the name of the configuration file
MemoryType: Specify the buffer memory type, either `DX9` or `DX11`

The configuration file contains command-line options for each batch transcoding session. In the implemented sample, the following limits are set:

- Max. no. of supported Batch Transcoding sessions: 5
- Max. no. of transcoding sessions: 3

The following example shows the configuration file for two batch transcoding sessions across two different devices:

- `input_01.h264 0`:represents 1st session of batch transcoding on device 0
- `input_02.h264 1`: represents 2nd session of batch transcoding on device 1

Here, `input_01.h264` is decoded on device `0`, generating three H.264 output streams:

- `output_640x480_session0_dev0.h264`
- `output_1280x720_session0_dev0.h264`
- `output_1920x1080_session0_dev0.h264`

Similarly, `input_02.h264` is decoded on device `1`, generating three H.264 output streams:

- `output_640x480_session1_dev1.h264`
- `output_1280x720_session1_dev1.h264`
- `output_1920x1080_session1_dev1.h264`

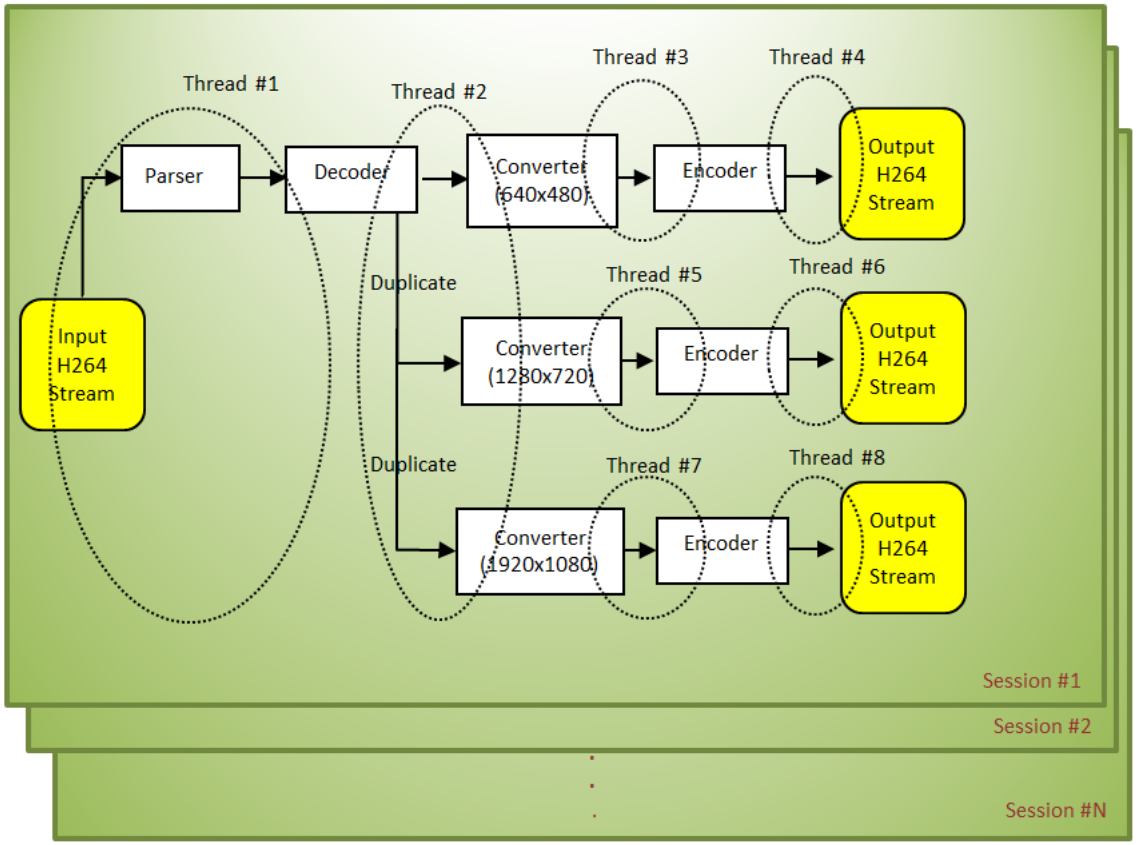
The generic format for each batch transcoding session is as follows:

<*H264 stream*> <*device ID*>

<*H264 stream*>: Input H264 encoded stream.
The stream must adhere to the following extensions only: .H264, .264.

4 Implementation Details

The sample implements the following multi-session batch transcoding:



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

- Parser: H.264 Elementary stream data is first read by the parser which finds the SPS & PPS, finds NALU unit, and populates data structures which are fed to the H.264 Decoder.
- Decoder: HW Accelerated (UVD) H.264 Video Decoder. Decodes the input content to generate NV12 frames.
- Converter: Each session decoded output resized to 640x480, 1280x720 and 1920x1080 resolutions before giving it to the encoder.
- Encoder: HW Accelerated (VCE) H.264 Video Encoding. Encodes the input content to generate compressed H.264 Elementary stream.

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

5 Supported formats

The following file formats are supported:

- Video transcoders supported: H.264
- Output file format: 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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