

Media Samples Guide

Overview

Samples work with **Intel® Media Software Development Kit 2018** (hereinafter referred to as "**SDK**").

They demonstrate how to incorporate the **SDK** API into various applications.

Some samples are able to work with **HEVC Decoder & Encoder** (hereinafter referred to as "**HEVC Encoder**", "**HEVC Decoder**", "**HEVC**").

Not all of the samples listed below might be applicable and supported for a particular product. Make sure to check the respective release notes document for potential limitations.

What's New

- Sample code for obsolete components (Screen capture and S3D control) is deleted.
- New options in sample_encode:
 - Arbitrary SEI insertion
 - Support for interlaced HEVC encoding
 - Intra Refresh options are added
 - Weighted Prediction options are added
 - QVBR mode is added
 - Adaptive Max Frame Size is added
 - Low Delay BRC is added
 - Support for Intra Refresh
- New options in sample_multi_transcode:
 - Support for transcoding with interlaced HEVC (as source and/or destination)
 - Weighted Prediction options are added
- Chroma siting option is added to sample_vpp.
- Encoding parameters presets are added to sample_encode and sample_multi_transcode. Default encoding settings are change for better quality.
- New measurements using -stat option.
- ARGB16 support is added to sample_camera.
- Target MSDK API version is 1.26, but samples may be compiled with API 1.24 and 1.25 (some functionality will be disabled in this case).

Package contents

Full list of available samples:

- **Video Decoding Sample**

Console application which performs decoding of elementary compressed video stream to raw frames. Includes the following features:

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- decoding of HEVC (High Efficiency Video Coding) video via **HEVC Decoder**
- decoding with video post processing (color conversion) of raw video sequences
- **Video Encoding Sample**
Console application which performs encoding of raw video frames into elementary compressed stream. Includes the following features:
 - video resizing
 - video rotation via User Plug-in Sample
 - video rotation via User Plug-in Sample using OpenCL™
 - encoding HEVC video via **HEVC Encoder**
- **Video Processing Sample**
Console application which performs various video processing algorithms on raw frames.
- **Video Transcoding Sample**
Console application which performs transcoding of elementary video stream from one compressed format to another. Includes the following features:
 - multiple video streams transcoding
 - video resizing, de-interlacing
 - video rotation via User Plug-in Sample
 - video rotation via User Plug-in Sample using OpenCL
 - video processing using VPP algorithms
- **OpenCL Video Motion Estimation Sample**
Console application which provides step-by-step guidelines on the using Intel's motion estimation extension for OpenCL standard. The motion estimation extension includes a set of host-callable functions for frame-based Video Motion Estimation.
- **OpenCL Interoperability Sample**
GUI application which demonstrates how to use **SDK** and Intel® OpenCL SDK together for efficient video decoding and fast post-processing.

Each sample includes:

- a readme file for each sub-sample
- source and header files for each sub-sample

Samples package has one installer for all sub-samples.

Software & Hardware Requirements

Hardware:

- Hardware requirements are the same as described in **SDK** Release Notes
- (Optional) HDMI* 1.4, eDP* 1.1 or similar based monitor/TV as primary display
- (Optional) Active shutter glasses

Software:

- Microsoft Windows* 7, Microsoft Windows* 8, Microsoft Windows* 8.1 or Microsoft Windows* 10
- For Microsoft DirectX* 11 functionality - Microsoft Windows 8 or Microsoft Windows 8.1.
- Microsoft Visual C++* 2010 or later version of Microsoft Visual C++ (if exact version is not specified in particular sample readme).
- For samples - Microsoft Windows SDK for Windows 7 or Microsoft Windows SDK for Windows 8.
- For Microsoft DirectX 11 enabled samples - Microsoft Windows SDK for Windows 8.
- Intel® Media Software Development Kit 2018

- For **OpenCL User Plug-in, OpenCL Video Motion Estimation Sample and OpenCL Interoperability Sample** - Intel® SDK for OpenCL™ Applications for compilation, OpenCL driver – to run the samples.

Installation

Run the `IntelMediaSamples.msi` installer from the package to install all the samples.

Build Instructions

1. `INTELMEDIASDK_WINSOCK_PATH` environmental variable:
 - **Samples** depend on Microsoft* Windows* SDK include and library files.
 - **Samples** installer will try to set `INTELMEDIASDK_WINSOCK_PATH` environment variable used in sample project files to locate those include and library files.
 - You may want to set (possibly to “”) `INTELMEDIASDK_WINSOCK_PATH` variable manually (possibly with the help of `<install-folder>\samples\set_INTELMEDIASDK_WINSOCK_PATH.bat`) in the following cases:
 - The variable was not set during installation due to no Microsoft Windows SDK installed or installed to a non-default location.
 - Your Microsoft Visual Studio* environment is already set up with Microsoft Windows SDK include and library directories (e.g. via registration script for Microsoft Visual C++* 2005). Set the variable to “” or delete it in this case.
 - You wish to use a different Microsoft Windows SDK version than was auto-detected and set at installation.
2. `INTELMEDIASDKROOT` environmental variable:
 - Samples depend on **SDK** external headers and **SDK** dispatcher library which are searched in folders `INTELMEDIASDKROOT\include` and `INTELMEDIASDKROOT \lib\<arch>` respectively.
 - `INTELMEDIASDKROOT` is set by **SDK** installer and points to the **SDK** installation folder.
3. OpenCL headers and libraries for **OpenCL User Plug-in, OpenCL Video Motion Estimation Sample and OpenCL Interoperability Sample**:
 - These samples require OpenCL headers and libraries to be available. All needed files are located in **Intel® SDK for OpenCL™ Applications**. Please install SDK for OpenCL™ Applications and set up `INTELOCLSDKROOT` environment variable to `<SDK-For-OpenCL-Applications-install-folder>\include\cl\` folder.
4. Building with Microsoft Visual C++*:
 - Use provided with each sample solution file `.sln` with Microsoft Visual C++ version 2005 or later to build the respective sample. Locate the resulting executable file in the folder `<install-folder>_build \<PlatformName>\<ConfigurationName>`.
5. Choosing Microsoft Direct3D* version to build with:
 - If version of the installed Microsoft Windows* SDK is 8.0 or above, then Microsoft Direct3D* 11.1 surfaces support will be enabled in sample by default. You can enable or disable it manually using `MF_X_D3D11_SUPPORT` macros defined in `<install-folder>\sample_common\sample_defs.h`
6. Building using Debug configuration.
 - `Debug_WithDebugAPI` configurations of samples are dependent on debug versions of dispatcher library (`libmfx_d.lib`). This library is an open source project, so you may build it from source code. Note, that `libmfx_d.lib` is not provided in binary form, so it has to be built manually. Source code of dispatcher library is available at **Intel® Media Software Development Kit 2018**

Running the Software

Running **Samples** with Intel® OpenCL dependency:

- Make sure proper OpenCL driver is installed on the machine. Please refer to <https://software.intel.com/en-us/articles/opencl-drivers> for details.
- Add a path to opencl.dll from the driver installation above to PATH variable

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