APPS056-Codensity T408 YUV444 encoding and decoding Application Note

V1.0

06/06/2022

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1 Table of Abbreviations

Abbreviation:	**Full Form:**
API	Application Programming Interface
FPS	Frames Per Second
GOP	Group of pictures
NVMe	Non-Volatile Memory express
PCIe	Peripheral Component Interconnect express
YUV	Y-Luma, UV- Chroma
RGB	Red Green Blue
SDK	Software Development Kit

2 References

Technical Notes:
Specifications:

3 Background

This document describes the YUV444 encoding and decoding feature and its usage in operation/integrating with the NETINT T408.

3.1 Intended Audience

This document is intended to help engineers/technicians/developers operating NETINT codec better understand the T408 YUV444 encoding and decoding feature.

3.2 Compatibility

Software Compatibility

This guide is intended to be used with NETINT Codensity T408 Video Transcoder software Release TBD.

Hardware Compatibility

Release TBD supports NETINT Codensity T408 Video Transcoder hardware.

Operation system

N/A

4 YUV 444 encoding and decoding

4.1 Intro

YUV 444 encoding and decoding is a feature that allow the user to encode and decode YUV444 stream by T408.

To support yuv444p format encoding and decoding, we provide two filters yuv444to420 and yuv420to444.

4.2 Using feature

At the encoding end, the input data in yuv444 format is divided into two streams through the filter 'yuv444to420' and then encoded.

At the decoding end, after decoding the two streams, the yuv444 data is synthesized through the filter 'yuv420to444'.

4.2.1 Encode

sudo sudo ffmpeg -y -hide_banner -nostdin -f rawvideo -pix_fmt yuv444p -s:v 1920x1080 -i ./1920x1080-hevc-60p-444-20sec-STARCRAFT.yuv -filter_complex yuv444to420[a][b] -map '[a]' -c:v h264_ni_enc ./t408_yuv444_1.h264 -map '[b]' -c:v h264_ni_enc ./t408_yuv444_2.h264

Using the above command, the T408 encode one yuv444 stream to two yuv420 h264 stream by two Netint encoders.

4.2.2 Decode and combine two yuv420 stream to one yuv444 stream

sudo ffmpeg -y -hide_banner -nostdin -c:v h264_ni_dec -i ./t408_yuv444_1.h264 -c:v h264_ni_dec -i ./t408_yuv444_2.h264 -filter_complex 'yuv420to444' -c:v rawvideo ./output_444.yuv

Using the above command, the T408 decode two yuv420 h264 stream and combine two decoding yuv420 data to yuv444 data stream.

5 Revision History

Version	Change	Create Date	Author
1.0	Document Created	June 6,2022	Long Han

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