

PRESS RELEASE

PRESS RELEASE

September 7, 2012 || Page 1 | 2

Fraunhofer IIS Low Complexity Codec Enables Transmission of High-Resolution Video Regardless of Bandwidth Limitations

Vast amounts of high-resolution images mean vast amounts of data: The Low Complexity Codec developed by the Fraunhofer Institute for Integrated Circuits IIS flexibly adapts streams of image data to the available infrastructure and bandwidth without sacrificing high resolution or dynamic range.

In film production, high-resolution camera images often stretch the transmission capacity of buffers and internal bus systems. If these images are transmitted to external equipment using a standard connection such as Ethernet, HD-SDI or Channel-Link, then bit rate limits (1 GBit/s in the case of Ethernet) will inevitably lead to bottlenecks. Every time the information superhighway becomes congested, errors such as dropped frames will occur during transmission. Fraunhofer IIS's Low Complexity Codec eliminates this problem: It makes it possible to utilize standard connections and low-cost programmable chips to transmit high-resolution video frame by frame with visually lossless compression (1:2 to 1:8) and minimal latency (typically less than one millisecond). While data volumes are greater than with the H.264 codec, for instance, the computational cost involved is low enough to enable the use of existing or easily available low-cost electronic components. Since the Low Complexity Codec requires no complex circuitry, it can, for instance, be implemented on an existing FPGA (field-programmable gate array) that is not operating at capacity. No expensive special FPGAs or ASICs (application-specific integrated circuits) are needed.

LCC allows the bit rate to be adjusted to the available bandwidth

Long-distance transmission of video signals from a computer to several monitors poses similar difficulties: Normally, an expensive solution such as a fiber-optic or specially created connection would be necessary to combine high image quality with high transmission quality – HDMI, DVI and DisplayPort connections enable fast transmission only over short distances. Fraunhofer IIS's Low Complexity Codec also provides the answer to this type of scenario: It allows the bit rate to be adjusted to the available bandwidth, depending on the type of cable used. When monitors are connected directly to a computer, low latency is crucial, since a person interacting with a computer expects any change to be immediately displayed on their monitor.

Editorial Notes

Thoralf Dietz | Fraunhofer Institute for Integrated Circuits IIS | Phone +49 776-1630 | Am Wolfsmantel 33 | 91058 Erlangen, Germany | www.iis.fraunhofer.de | thoralf.dietz@iis.fraunhofer.de |

FRAUNHOFER INSTITUTE FOR INTEGRATED CIRCUITS IIS

In sum, the Low Complexity Codec is an inexpensive solution for image processing and transmission systems used in professional film production and multimedia applications.

PRESS RELEASESeptember 7, 2012 || page 2 | 2

If you would like a taste of the current implementation, visit the Fraunhofer Digital Cinema booth at IBC 2012, which will be held in Amsterdam from September 7–11, 2012. Find us at booth B80 in Hall 8.

The **Fraunhofer-Gesellschaft** is the leading organization for applied research in Europe. Its research activities are conducted by 60 Fraunhofer Institutes at over 40 different locations throughout Germany. The Fraunhofer-Gesellschaft employs a staff of around 20,000 who work with an annual research budget totaling 1,8 billion euros. Roughly two thirds of this sum is generated through contract research on behalf of industry and publicly funded research projects. Branches in the USA and Asia serve to promote international cooperation.

For further information

Angela Raguse | Phone +49 9131 776-5105 | angela.raguse@iis.fraunhofer.de | Fraunhofer Institute for Integrated Circuits IIS | www.iis.fraunhofer.de