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JCTVC-C077

A framework for standardization of memory compression

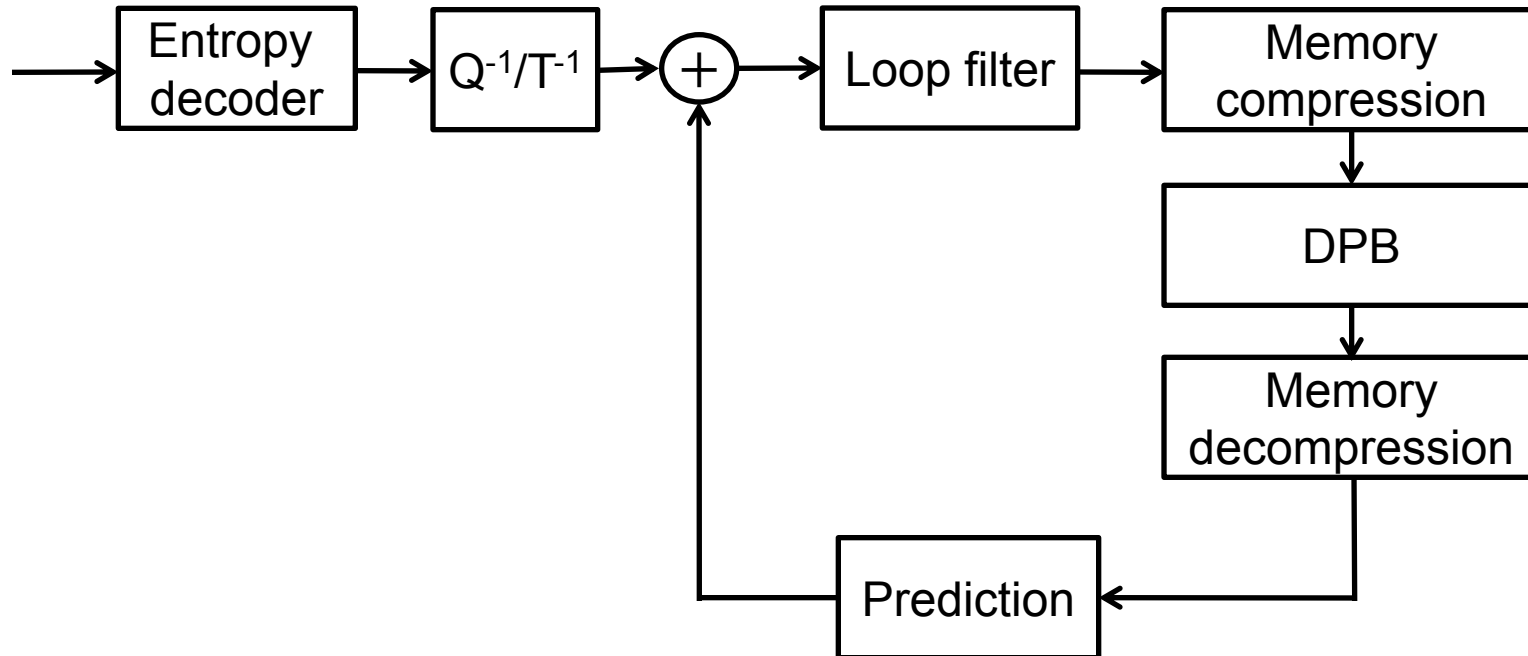
Takeshi Chujoh
Tomoo Yamakage

TOSHIBA CORPORATION
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Summary

- **The problems of standardization of memory compression**
- **What should be specified by standard?**
- **A framework for standardization of memory compression**

An example of memory compression



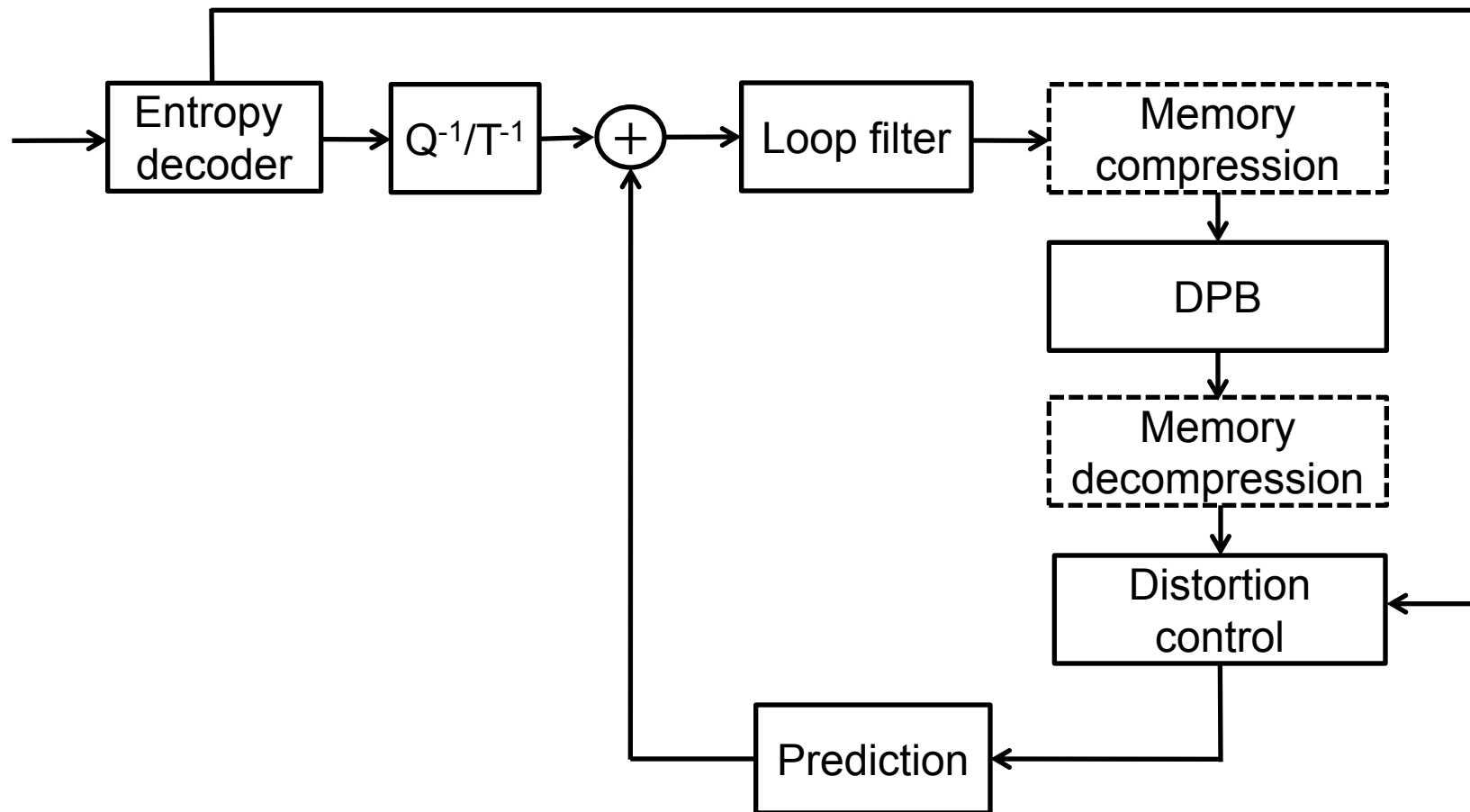
Problems

- **Bitstream format of memory compression is very important to reduce the memory bandwidth; however it depends on individual hardware architecture.**
 - It seems to be very difficult to define a common bitstream format.
- **Memory compressed bitstream must be decoded by using memory compression.**
 - Architecture of decoder might not be the same as that of encoder.
- **Encoding process of memory compression might be specified by the standard, because the encoding process is included into the coding loop.**
 - It might not be easy to define the encoding process generally.

What should be specified by standard?

- **Lossless process does not need to be specified by standard.**
- **Lossy process is a technical essence.**
- **Standardization of memory compression should not define bitrate, should define distortion.**

Proposed framework



A specification of the distortion and a system to control the distortion should be defined

Example

- **Pixel precision is controlled.**

$X = (X \gg a) \ll a;$ // low a-bit shall not be used

“a” is distortion information slice by slice.

- **Under condition that pixels of controlled precision are lossless, arbitrary memory compression algorithm can be introduced.**

Conclusion

- **A framework for standardization of memory compression has been proposed.**
- **We suggest that we should discuss this topic in Adhoc Group continuously.**

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