Implementation of an Unequal Error Protection Scheme for Scalable Foveated Image Communication

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Background

- Unequal Error Protection (UEP)
  - Higher protection for more important bits
- Embedded Foveation Image Coding (EFIC)
  - Bits with greater contribution to the foveated visual distortion are encoded and transmitted first
- Punctured Turbo Codes
  - Channel codes
  - Better performance for bursty channels
  - Puncturing (removing bits) the bit stream non-uniformly to provide unequal error protection

System Modeling

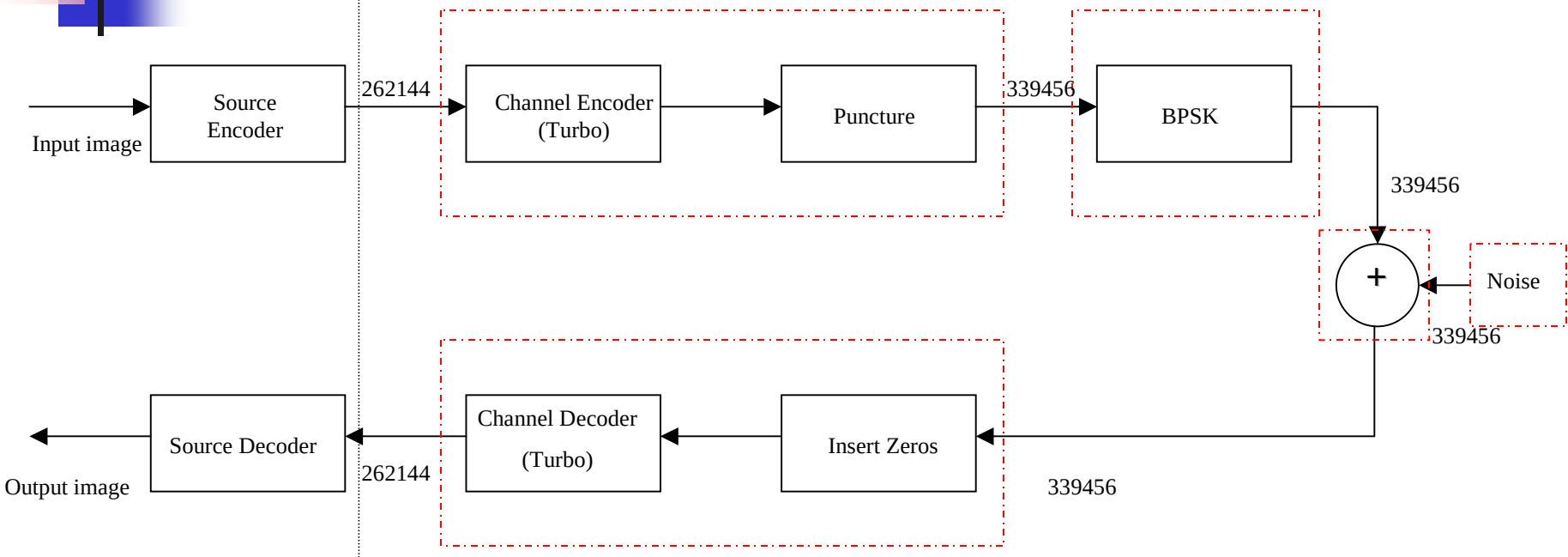

Fig. 1: Block diagram for unequal error protection using turbo codes

- The blocks shown in red are modeled as SDF actors

Implementation and Open Issues

❑ Implementation

- All the modules implemented in C
- Converted to TMS320C6701 assembly

❑ Open Issues

- Provide unequal error protection to EFIC images using Turbo codes
- Optimize with respect to the computation time and memory usage