

This paper proposes a soft input decoding algorithm and a decoder architecture for generalized concatenated (GC) codes. The GC codes are constructed from inner nested binary Bose-Chaudhuri-Hocquenghem (BCH) codes and outer Reed-Solomon codes. In order to enable soft input decoding for the inner BCH block codes, a sequential stack decoding algorithm is used. Ordinary stack decoding of binary block codes requires the complete trellis of the code. In this paper, a representation of the block codes based on the trellises of supercodes is proposed in order to reduce the memory requirements for the representation of the BCH codes. This enables an efficient hardware implementation. The results for the decoding performance of the overall GC code are presented. Furthermore, a hardware architecture of the GC decoder is proposed. The proposed decoder is well suited for applications that require very low residual error rates.