

# **WiMAX 802.16e/m CTC decoder product brief**

**TurboBest**

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## 1. Introduction

The dual CTC decoder designed to meet the WiMAX IEEE802.16e/m specifications [\[Ref 1/2/3\]](#).

CTC encoder and decoder enable an extremely effective way of transmitting data reliably over noisy data channels.

## 2. Block diagram

Below is the CTC decoder block diagram.

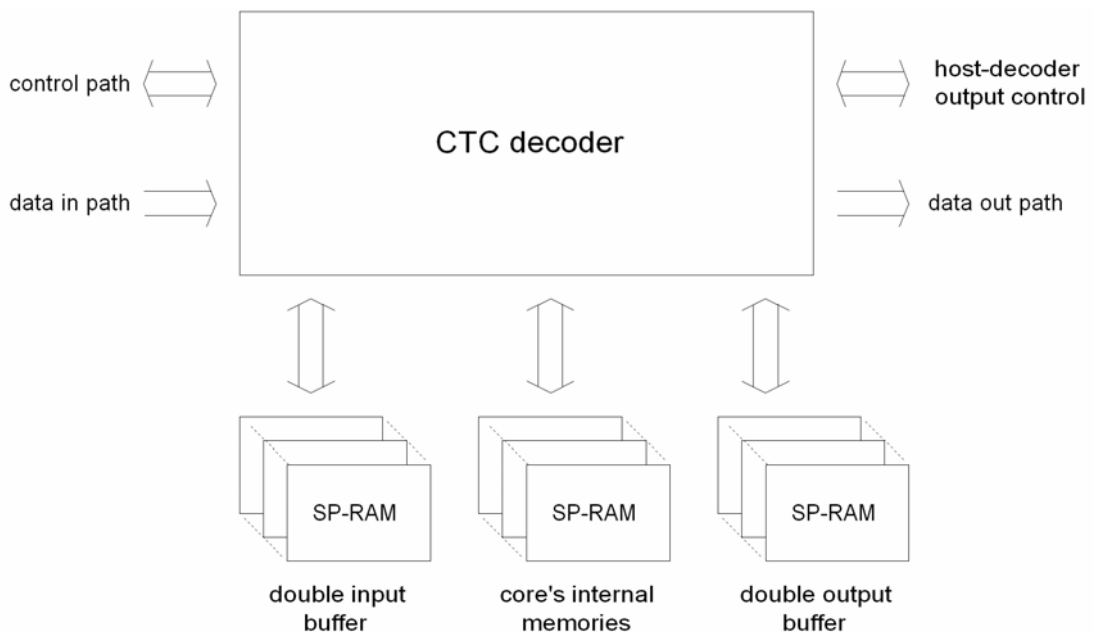


Figure 1 - CTC decoder block diagram

## 3. Features

- Implements the WiMAX IEEE802.16e/m specifications [\[Ref 1/2/3\]](#)
- All 802.16 block size range supported (40-4800).
- Scalable architecture to support various throughput targets. X1, X2, X4, X8 architectures are available.
- Block-by-block change of block size / number of iterations.
- Parametric soft input width (pre compile).
- Optional early termination mechanism is available to support power saving and higher statistical throughput.
- Code optimizations for ASIC (power saving) and FPGA (area saving)
- Matlab bit exact model is available.

## 4. Throughput

The throughput is function of architecture parallelism and technology target. The decoder is able to reach throughput of hundreds of Mbps.

## 5. Ordering information

For more information, please contact us at [info@turbobest.com](mailto:info@turbobest.com)

You can visit our Web site at <http://www.turbobest.com>

We are offering hardware and software free evaluations.

## 6. References

1. IEEE Std 802.16<sup>TM</sup>-2004, Part 16: Air Interface for Fixed Broadband Wireless Access Systems.  
8.4.9.2.3.1 CTC encoder  
Table 326—Optimal CTC channel coding per modulation  
Table 327—Optimal CTC channel coding per modulation when supporting H-ARQ
2. IEEE Std 802.16e<sup>TM</sup>-2005 and IEEE Std 802.16<sup>TM</sup>-2004/Cor1-2005, Part 16: Air Interface for Fixed Broadband Wireless Access Systems.  
8.4.9.2.3.1 CTC encoder  
Table 326—Optimal CTC channel coding per modulation  
Table 327—Optimal CTC channel coding per modulation when supporting H-ARQ
3. IEEE P802.16m/D2 - October 2009, Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access Systems  
15.3.11.1.5.1 Convolutional turbo codes  
Table 911—Interleaver Parameters