

**Dual mode
WiMAX 802.16e/m &
3GPP LTE
CTC decoder
product brief**

TurboBest

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1. Introduction

The dual CTC decoder designed to meet the both of the *3GPP Mobile Communication System* specification [\[Ref 1\]](#), and the WiMAX IEEE802.16e/m specifications [\[Ref 2/3/4\]](#).

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.

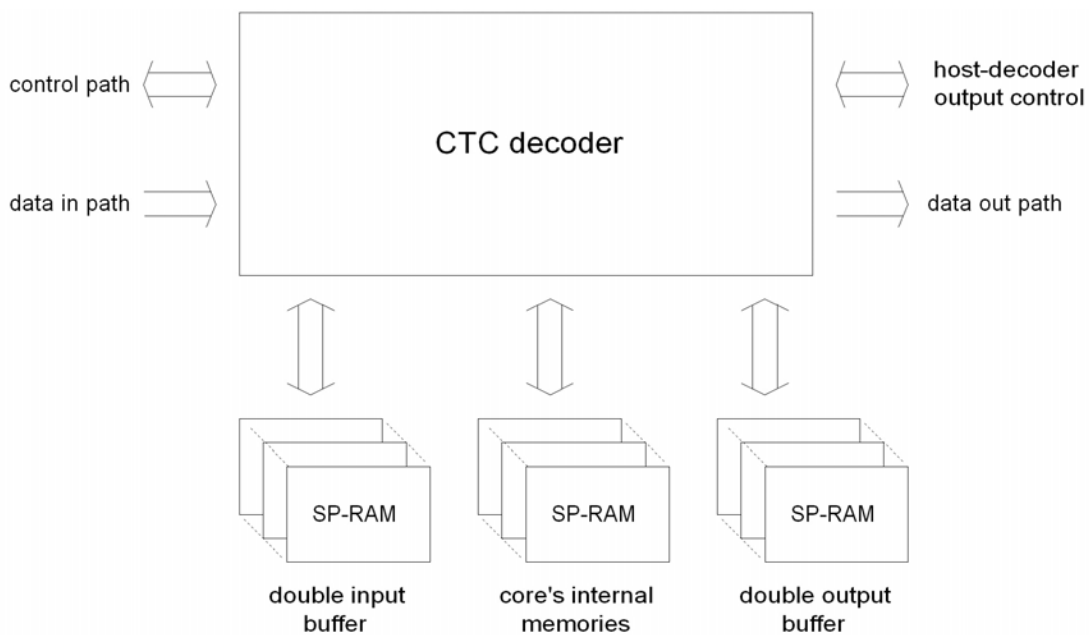


Figure 1 - CTC decoder block diagram

3. Features

- Implements the 3GPP Long Term Evaluation (LTE) specifications [\[Ref 1\]](#)
- Implements the WiMAX IEEE802.16e/m specifications [\[Ref 2/3/4\]](#)
- All 188 3GPP LTE block size range supported (40–6114).
- 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 decoder mode / 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

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

We are offering hardware and software free evaluations.

6. References

1. 3G TS.36.212 V1.0.0 (2007-03), *Multiplexing and Channel Coding (Release 8)*, Technical Specification Group Radio Access Network, 3rd Generation Partnership Project.
2. IEEE Std 802.16TM-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
3. IEEE Std 802.16eTM-2005 and IEEE Std 802.16TM-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
4. 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