

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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SAMSUNG ELECTRONICS CO., LTD.,  
Petitioner,

v.

CALIFORNIA INSTITUTE OF TECHNOLOGY,  
Patent Owner.

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IPR2023-00137  
Patent 8,284,833 B2

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Before KEN B. BARRETT, JOHN A. HUDALLA, and  
AMBER L. HAGY, *Administrative Patent Judges*.

BARRETT, *Administrative Patent Judge*.

DECISION  
Denying Institution of *Inter Partes* Review  
35 U.S.C. § 314

## I. INTRODUCTION

### A. Background and Summary

Samsung Electronics Company, Ltd. (“Petitioner”)<sup>1</sup> filed a Petition requesting *inter partes* review of U.S. Patent No. 8,284,833 B2 (“the ’833 patent,” Ex. 1001). Paper 1 (“Pet.”). The Petition challenges the patentability of claims 1–4, 6–11, and 13–14 of the ’833 patent. California Institute of Technology (“Patent Owner”)<sup>2</sup> filed a Preliminary Response to the Petition. Paper 7 (“Prelim. Resp.”). With our authorization, Petitioner filed a Reply (Paper 8, “Pet. Reply”) and Patent Owner filed a Sur-reply (Paper 9, “PO Sur-reply”).

We have the authority to determine whether to institute an *inter partes* review. *See* 35 U.S.C. § 314 (2018); 37 C.F.R. § 42.4(a) (2021). Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted “unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Having considered the parties’ submissions, and for the reasons explained below, we exercise our discretion under 35 U.S.C. § 314(a) to deny institution of *inter partes* review.

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<sup>1</sup> Petitioner identifies Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. as the real parties-in-interest. Pet. 1.

<sup>2</sup> Patent Owner identifies California Institute of Technology as the real party-in-interest. Paper 5, 1.

*B. Related Proceedings*

Both parties identify, as matters involving or related to the '833 patent, the following:

- *California Institute of Technology v. Samsung Electronics Co., Ltd.*, No. 2-21-cv-00446 (E.D. Tex.) (“the underlying litigation”)
- *California Institute of Technology v. Microsoft Corp.*, No. 6-21-cv-00276 (W.D. Tex.);
- *California Institute of Technology v. HP Inc. f/k/a/ Hewlett-Packard Co.*, No. 6-20-cv-01041 (W.D. Tex.);
- *California Institute of Technology v. Dell Technologies Inc.*, No. 6-20-cv-01042 (W.D. Tex.);
- *California Institute of Technology v. Broadcom Ltd.*, No. 2-16-cv-03714 (C.D. Cal.), *aff'd, vacated, and remanded*, 25 F.4th 976 (Fed. Cir. 2022);
- *California Institute of Technology v. Hughes Communications, Inc.*, No. 2-15-cv-01108 (C.D. Cal.); and
- *California Institute of Technology v. Hughes Communications, Inc.*, No. 2-13-cv-07245 (C.D. Cal.).

Pet. 1–2; Paper 5.

The '833 patent was previously the subject of the following four *inter partes* reviews identified by the parties (Pet. 2; Paper 5, 2–3): IPR2015-00061 (“061 IPR”), IPR2015-00081 (“081 IPR”), IPR2017-00702 (“702 IPR”), and IPR2017-00703 (“703 IPR”). In the 061 IPR, institution was denied on the merits concerning challenges to claims 1, 2, 4, 6, 8, 9, 10, 11, and 13 of the '833 patent as allegedly being obvious over various combinations of references known as “Ping,” “Hennessy,” “Luby '09,” and

“Divsalar.” In the 081 IPR, institution was denied on the merits concerning challenges to claims 1, 2, 4, 6, 8, 9, 10, 11, and 13 of the ’833 patent as allegedly anticipated by “MacKay Software” or as allegedly being obvious over various combinations of “MacKay Software,” “Kernighan,” U.S. Patent No. 7,116,710 B1, and “Hennessy.” In the 702 IPR, institution was denied on the merits concerning challenges to claims 1–14 of the ’833 patent as allegedly being obvious over “Pfister Slides” and “MacKinnon.” In the 703 IPR, institution was both discretionarily denied under 35 U.S.C. § 325(d) and denied on the merits concerning challenges to claims 1–14 of the ’833 patent as allegedly being obvious over U.S. Patent No. 7,116,710 B1 and “MacKinnon.” None of those references are at issue in this proceeding.

Patent Owner additionally identifies the following co-pending *inter partes* review proceedings: *Samsung Electronics Co., Ltd. v. California Institute of Technology*, IPR2023-00130; *Samsung Electronics Co., Ltd. v. California Institute of Technology*, IPR2023-00131; *Samsung Electronics Co., Ltd. v. California Institute of Technology*, IPR2023-00133. Paper 5, 2–3. Patent Owner also identifies several other Patent Trial and Appeal Board cases as related matters. *Id.*

### *C. The ’833 Patent*

The ’833 patent is titled “Serial Concatenation of Interleaved Convolutional Codes Forming Turbo-Like Codes.” The ’833 patent explains some of the prior art with reference to its Figure 1, reproduced below.

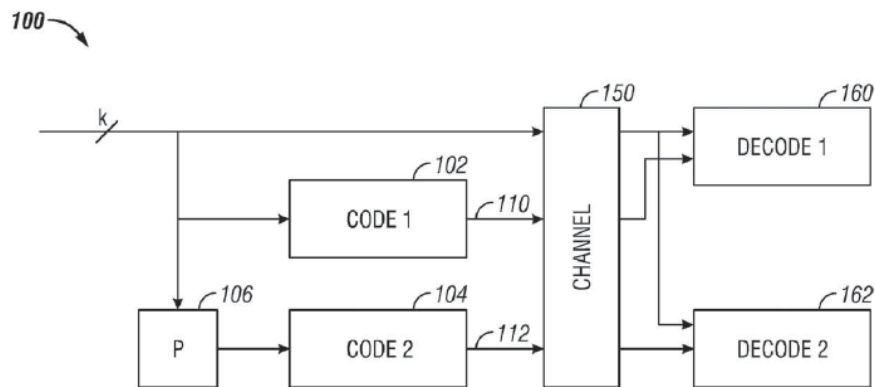


FIG. 1  
(Prior Art)

Figure 1 is a schematic diagram of a prior “turbo code” system. Ex. 1001, 2:21–22. The ’833 patent specification describes Figure 1 as follows:

A block of  $k$  information bits is input directly to a first coder 102. A  $k$  bit interleaver 106 also receives the  $k$  bits and interleaves them prior to applying them to a second coder 104. The second coder produces an output that has more bits than its input, that is, it is a coder with rate that is less than 1. The coders 102, 104 are typically recursive convolutional coders.

Three different items are sent over the channel 150: the original  $k$  bits, first encoded bits 110, and second encoded bits 112. At the decoding end, two decoders are used: a first constituent decoder 160 and a second constituent decoder 162. Each receives both the original  $k$  bits, and one of the encoded portions 110, 112. Each decoder sends likelihood estimates of the decoded bits to the other decoders. The estimates are used to decode the uncoded information bits as corrupted by the noisy channel.

*Id.* at 1:46–61.

A coder 200, according to a first embodiment of the invention, is described with respect to Figure 2, reproduced below.

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