

## **WEB SITE ORGANIZATION**

**This site introduces certain intellectual properties of Rice Electronics. The site is currently organized into 3 Segments. These are:**

**-The PROCESSING SEGMENT**

**-The COMPRESSION SEGMENT**

**-The REDUCED ENERGY ENCODING SEGMENT**

**Each Segment highlights a different portion of the Rice Intellectual Property (IP) base.**

**At present, a single summary document is allocated to each Segment in the “Projects” section of the site. Additional information may be accessed under the “More” tab.**

**(Some documents posted at the site may reference need for direct Company contact. In such case interested parties may contact Rice Electronics regarding discussion of proprietary material under NDA or other vehicle).**

**The Segment documents are introduced below:**

**PROCESSING SEGMENT Describes IP enabling development of advanced digital processing hardware devices and systems. “Multi-Mode” Architectures are discussed, which provide >90% reduction in cost/complexity/power relative to conventional processors.**

**The Company’s IP in this area addresses the challenging computational needs of applications such as,**

- **Neural Networks**
- **5G Wireless Infrastructure**
- **Image Recognition**
- **Speech Recognition**

**The IP entails structures and methods providing breakthroughs in specialized high-performance processing. Independence of transistor-level technologies allows hardware implementations across a range of monolithic circuits.**

**The Company's Processing IP includes;**

- **“Architecture IP” for high-bandwidth 1-D and 2-D processing (e.g. 100s of MHZ real-time bandwidth for 4096 point FFT; with <100 thousand gates)**
- **“Modelling IP” to support rapid development of high-performance implementations of the Architecture**
- **Specialized “Multiplier IP” for minimizing logic in advanced circuit design**

**COMPRESSION SEGMENT This Segment relates to IP for compression of multi-media data types, including;**

- **Video**
- **Imagery**
- **Speech**

**This IP enables advances in the storage and transmission of multi-media data. It includes lossy processes and methods allowing trade-offs between degree of compression, and fidelity of recovered data.**

**The IP can alleviate constraints of bandwidth, memory space, and other factors in new and existing systems. It can supplement standard compression algorithms, or serve as stand-alone compression processes.**

**Certain “successive” decompression methods of a proprietary nature are referenced therein. However, these are not in contradiction to theoretical limits on compression and transmission of data, including Shannon's laws. (As points of reference, limits identified by Shannon presume “lossless” data transmission, and certain restrictions on “a-priori” knowledge known by sender/receiver or compressor/decompressor).**

**REDUCED ENERGY ENCODING SEGMENT** This Segment identifies IP for the manipulation of energy/power levels of digital signals. Applications include reduction of signal power for wireless communications. Energy level reductions may approach 50% with no loss of information content.

Advances enabled by the IP include:

- Extended battery life in mobile devices
- Reduction of mutual interference in wireless networks
- Increased noise immunity for wireless broadcast systems

As discussed at this site, the IP can be applied to reduction of average power and Peak-to-Average-Power Ratios (PAPR) in OFDM waveforms. This mitigates fundamental issues in the creation of such waveforms as related to effects of the Central Limit Theorem. Thus the IP is of substantial utility in many areas, ranging from broadcast to network systems (including 5G radio).

## CONTACT

Interested parties are referred to the contact information below:

Contact:

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