



ISOCC 2014

November 3-6, 2014 Ramada Plaza Jeju Hotel, Jeju, Korea

Shu Wu (吳 澍)

Gunma University, Japan

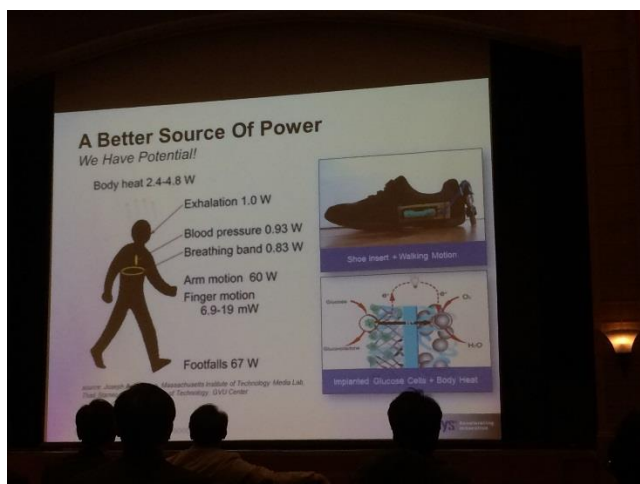
ISOCC2014 Trip Report

Jeju, Korea, 2-5 November 2014

From Nov. 2nd to 5th, I went to Jeju island in Korea for ISOCC 2014 (International SoC Design Conference). It is an annual conference providing an open forum for SoC designers to exchange information, to gain new knowledge, and to network with leading experts in this field. My submission paper "Dynamic Performance Improvement of DC-DC Buck Converter by Slope Adjustable Triangular Wave Generator" was accepted and presented an oral session. There are other 2 papers which were submitted by our lab members, and were accepted as oral paper.

There are 4 tutorials and 6 keynote speeches to introduce the innovative technology and products. 94 oral presentations and 55 posters are included in Technical Program, and 186 chips and demos were shown in Chip Design Contest.

Since this conference is focused on SoC design, a lot of research and design emphasize low power and high efficiency. There is one special session whose topic is Near-Threshold Voltage (NTV) circuit design. That means transistor will be operated under sub-threshold region for the pursuit of the highest power efficiency. Along with the development of this technology, the supplied voltage of processor, memory and other function block in portable device should further decrease. (Now it is around 1.3V normally. In future, this voltage possibly decrease to 0.8V, even 0.5V). This not only pose challenge to circuit design, but also requires improvement of power supplies system.



Human's body is utilized as power source?

It seems to be an effective power harvesting scheme for wear device which are very popular in recent years.

The power harvesting technology and some novel design for power supplies system are very interesting. Although not find similar research to mine, I still get some inspiration that is helpful for my research. Except power supplies, there are so many amazing idea and technology, as image sensor, IoT (Internet of Things) and so on.

I presented our research on 4th November.



Shu Wu, Yasunori Kobori and Haruo Kobayashi

“Dynamic Performance Improvement of DC-DC Buck Converter by Slope Adjustable Triangular Wave Generator”

11th International SoC Design Conference, Jeju, Korea (Nov. 2-6, 2014)

ISOCC 2014 is held at Jeju Island, Korea. It take 2 hours by airplane from Tokyo Narita airport to Jeju. The weather and temperature in November is similar to Gunma. Because of the Jeju Island is relatively isolative to the mainland Korea, it has different culture and language. The most distinct cultural artifact is the Dol hareubangs (stone grandfather) carved which is considered to be god offering both protection and fertility.

Another distinct aspect of Jeju is the matriarchal family structure. Because of women earned their living from free diving (without scuba gear) since the 17th Century. Since women were more adapted offshore diving than male with more body fat which help they keep warmer in quite cold water. With this job, they often became the head of their family. They are named as Haenyo (sea women). In the early 1960s, 21% of women on the island were free divers. Providing 60% of the island's fisheries revenue. However, along with modernization and economic development, as of 2014 only about 4500 haenyeo, most aged over 60, were still actively working.

As the volcanic and lava tubes in Jeju is nominated as World Heritage Site, the tourism has taken a more and more important role in Jeju economy. By now, there are more than six million visitors per year. Specially, the visa-free policy attract hundreds of thousands of Chinese tourists, and the number is increasing.



The stone grandfather and me in the front of our hotel. They are always placed outside of gates for protection against demons



A Haenyo statue behind the Ramada Plaza Jeju Hotel where ISOCC 2014 is held in



A typical Korean cuisine ---Bibimbap.
(Of course, with many Korean pickles)

Maybe since this conference is held in Korea, upwards of 80% designs and papers come from Korean university and companies. As we know, electronic industry of Korea continually and rapidly increases in recent years. Dozens of Hi-tech enterprises exhibited their products, hounds of researchers introduce their design, research and finding. People can exchange

information and gain new knowledge by this chance. For me, ISOCC brings me gains from 3 aspects:

1. Learning a lot of interesting design of power supplies system, as SIMO converter, power harvesting, digital control strategy and so on.
2. Understand what is the trend and challenge of power supplies along with the development of another device.
3. It is a good chance to broaden my horizons. Through the amazing ideas and concepts, we can image the life in future or even can be realized just in the next few years.

In addition to the gains from the conference, I learned something about Korean culture. Especially the unique culture of the Jeju Island. All of them are very interesting.