

Data alignment for multi-channel high-speed interfaces using PRBS patterns

Seung-Woo LEE*, In-Ki HWANG*, Hun-Sik KANG*

* *Optical Network Research Group, ETRI, Daejeon, South Korea.*

beewoo@etri.re.kr, ikhwang74@etri.re.kr, gadin@etri.re.kr

Abstract—Multiple FPGAs are used for high-speed and large amount of data transfer and also designed to implement DSP functions. The consecutive PRBS patterns are used for bit synchronization and data alignment between high-speed multi-channel interfaces of FPGAs.

Keyword—bit synchronization, data alignment, multi-channel I/O, PRBS patterns

Seung-Woo Lee was born in Seoul, Korea, in 1972. He received the B.S. degree in electronic engineering from Yonsei University, Seoul, Korea, in 1995. He received his M.S. and Ph.D. in electronic engineering from Yonsei University in 1997 and 2002, respectively. From 2002 to 2004, he worked as a senior engineer of analog circuit design in Hynix Semiconductor Ltd., Korea. In 2004, he joined Electronics and Telecommunication Research Institute and currently works as a principal researcher. His primary research interests include high-speed interface technology such as serdes, gigabit transceiver, and PLL. He is presently researching high-speed interface design in optical communication systems such as OFDM.

In-Ki Hwang received the M.S. degree in electrical engineering from Sungkyunkwan University, Rep. of Korea, in 2011. In 2001, he joined Electronics and Telecommunication Research Institute and currently works as a principal researcher. His primary research interests include high-speed interface technology and hardware engineering in optical communication system. He is presently researching high-speed interface design in optical communication systems such as OFDM.

Hun-Sik Kang received the M.S. degree in electrical engineering from Kyung-book National University, Daegu, Rep. of Korea, in 1994, and the Ph.D. degree in Information & Communication from KAIST, Deajeon, Korea, in 2011. From 1995 to 2000, he worked as a Design Engineer in Hynix Semiconductor Ltd., Korea. In 2000, he joined Electronics and Telecommunication Research Institute and currently works as a principal researcher. His primary research interests include digital signal processing on wireless/optical communication systems and hardware engineering.