
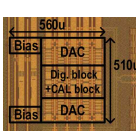
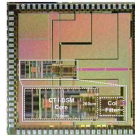
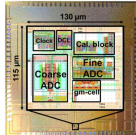



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| <div><div><b>MSICL</b><br/>Mixed Signal IC Laboratory</div></div> <div>Mixed Signal Integrated Circuits Laboratory</div>  |  | <div><b>Contact information</b></div> <div>Professor : Seung-Tak Ryu      TEL : 042-350-7425<br/>Lab. : E3-2 #4230, 4224      TEL : 042-350-7525, 7625<br/>Website : <a href="http://msicl.kaist.ac.kr">http://msicl.kaist.ac.kr</a></div>  |  |
| <div><b>Current state of the Lab. (in 2025 Spring Semester)</b></div> <div>Postdoctoral Fellows : 1      PhD Students: 14      Master's Student: 5</div>   |  |   |  |
| <div><b>Research Areas</b></div> <div><p>MSICL researches Analog/Mixed signal circuit design. The major research topic is data converters, which converts analog signal to digital signal or vice-versa. This research area has gained significance along with semiconductor advancements. As digital circuits gain popularity for their enhanced computational capabilities and reduced power consumption, analog circuits assume a pivotal role in transferring natural signals to digital systems. Since numerous signals in human-related contexts remain analog, the research on analog circuits is essential with the development of circuit systems. However, the number of analog circuit designer is insufficient compared to analog circuit demands.</p><p>The research scope of MSICL encompasses a range of subjects including: High-speed ADCs (SAR/Pipeline/Flash/Time-domain/Time-Interleaved/etc.) and DACs (Current-domain), High-resolution ADCs (Delta-Sigma Modulator/Noise-shaping SAR), Radiation-tolerant Data converters, Synthesizable Data converters, Design Automation, Random Number Generator, and more.</p></div> <div></div> <div><div>&lt;10b 500M/s Pipelined SAR ADC&gt;</div><div>&lt;400K/s 4-CDE CT I-DSM ADC&gt;</div><div>&lt;12b 1GS/s CS-DAC w/ cal.&gt;</div></div> |  |   |  |
| <div><b>Recommended courses &amp; Career after graduation</b></div> <div><div>- Recommended courses: Electronic Circuits (EE304), Digital Electronic Circuits (EE372), and Analog Electronic Circuits (EE403).</div><div>- Career after graduation: Engineers in industry, professors, researchers in national research centers</div></div>  |  | <div><b>Introduction to other activities besides research</b></div> <div><p>To foster the friendship of lab members, numerous events are organized throughout each season. During spring and fall, outings are arranged, while in summer and winter, regular workshops take place.</p><div>(2025 Spring Outing) -&gt;</div></div> |  |
| <div><b>Introduction to the Lab.</b></div> <div>As aforementioned, MSICL researches Analog/Mixed signal circuit designs. Data converter which is the major topic of our Lab becomes more important in IC system and undergoes lack of manpower. Since our circuit design treats both analog and digital circuits, the students who have interested in circuit design can get a good chance to study IC circuits. Also, MSICL performs the many projects with companies and researching institute such as Samsung, Hynix, ETRI and so on. So the students can improve the executive ability as well.</div>  |  |   |  |
| <div><b>Recent research achievements (24'~25')</b></div>   |  |   |  |
| <div>- Conference Presentations</div> <div>[1] Young-Hun Moon, IEEE MWSCAS, 2025.<br/>[2] Kwan-Hoon Song, IEEE MWSCAS, 2025.<br/>[3] Kent Edrian Lozada, IEEE CICC, 2025.<br/>[4] Kent Edrian Lozada, IEEE VLSI, 2024.<br/>[5] Yedam Kim, IEEE VLSI, 2024.<br/>[6] Charlie Tahar, IEEE NSREC, 2024.<br/>[7] Bo Gao, IEEE ASSCC, 2024.<br/>[8] Charlie Tahar, IEEE ASSCC, 2024.<br/>[9] Lizhen Zhang, IEEE ASSCC, 2024.</div>   |  | <div>- Journal Publications</div> <div>[1] Ji-Wook Kwon, IEEE TCAS-II, 2024.<br/>[2] Lizhen Zhang, IEEE OJAS, 2024.<br/>[3] Kent Edrian Lozada, IEEE JSSCC, 2024.<br/>[4] Kent Edrian Lozada*, Dong-Hun Lee*, IEEE JSSC, 2024.<br/>[5] Jae-Hyun Chung, IEEE JSSC, 2024.<br/>[6] Charlie Tahar, IEEE TNS, 2024.<br/>[7] Kent Edrian Lozada, IEEE, OJ-SSCS, 2024.</div>   |  |