

CONTACT INFORMATION	Department of Electrical and Computer Engineering Seoul National University, 1 Gwanak-ro, Gwanak- gu, Seoul 08826, Korea	<i>Mobile:</i> +82-(0)10-7797-3668 <i>Email:</i> kmbaek@isd1.snu.ac.kr
RESEARCH INTERESTS	<p>Analog / Mixed Signal (AMS) Integrated Circuit (IC) AMS IC design and its applications, Clock generation circuit (All-Digital Phase-Locked Loop), PMIC, Low power circuit, Machine learning for IC design, Layout automation.</p> <p>Future of IC In-Memory, Neuromorphic Computing.</p>	
EDUCATION	<p>Apgujeong High School, Seoul, Korea Natural Science Department: 2nd Best Graduate, Mar. 2012 to Feb. 2015</p> <p>Seoul National University, Seoul, Korea</p> <p>M.S. Department of Electrical and Computer Engineering (ECE), Mar. 2021 to Feb. 2023</p> <ul style="list-style-type: none"> • Advisor: Deog-Kyoon Jeong • Laboratory: Integrated Systems Design Lab (ISDL) at Inter-University Semiconductor Research Center (ISRC) • Area of Study: Clock generation circuit, Phase-Locked Loop (PLL), Supply regulating • Total GPA of 4.3/4.3 <p>Thesis: “Design of All-Digital Phase-Locked Loop with Supply Noise-Insensitive RO”</p> <p>B.S. Department of Electrical and Computer Engineering (ECE), Mar. 2015 to Feb. 2021</p> <ul style="list-style-type: none"> • Total GPA of 3.53 / 4.3 (Upper: 3.75/4.3, Major: 3.64/4.3) • 2-year absence to fulfill military duty, Mar. 2017 to Feb. 2019 <p>Thesis: “Designing Pre-Distortion circuit using X-model”</p> <ul style="list-style-type: none"> • Advisor: Jaeha Kim • Laboratory: Mixed-Signal IC and System Group at SNU (MICS) 	
HONORS AND AWARDS	<p>Awards</p> <ul style="list-style-type: none"> • Winning Hands-on programming contest for robot-car autonomous driving, Hyundai Mobis, Nov. 2019. • Participation award on Creative design fair, Dept. of Engineering, Seoul National University, Sep. 2020. • Third place on Designing business model using SoC patent TechBizConcert, Seoul National University System Semiconductor Start-up Supporting group, Oct. 2020. • 2022 Spring semester Best TA award, Dept. of Engineering, Seoul National University, Sep. 2022. <p>Scholarships</p> <ul style="list-style-type: none"> • National Science and Engineering Scholarship, Korea Student Aid Foundation, 2015 to 2021 • Artificial Intelligence Hardware Researcher Scholarship, National Research Foundation of Korea, from 2021 • Lecture and Research Supporting Student Scholarship, Dept. of Electrical and Computer Engineering, Seoul National University, 2022 • Applied Science small tutor program TA Scholarship, Dept. of Engineering, Seoul National University, 2022 • Industry-Academic Scholarship student, SK Hynix, from 2019 • Industry-Academic Scholarship student, Samsung Electronics, from 2020 	

<p>Work & RESEARCH EXPERIENCE</p>	<p>Seoul National University, Dept. of ECE, Integrated Systems Design Laboratory</p> <ul style="list-style-type: none"> • Advisor: Deog-Kyoon Jeong • Internship researcher, Jul. 2020 to Feb.2021 • Full-time researcher, from Mar. 2021 • Currently in charge of designing clock generation circuits, All-Digital Phase-Locked Loop (ADPLL), for the DRAM BOST, as a member of the high-speed link design team • Major Projects in Progress: <ul style="list-style-type: none"> System Semiconductor for AI R&D (0720-20200001), BK Creative IT R&D (5264-20200100) • Tape-Out: TSMC 40 nm GP (Apr., Sep. 2021, Mar., May 2022) <p>SK Hynix</p> <ul style="list-style-type: none"> • Quality Assurance, DRAM Customer Quality • Internship, Jun. 2019 to Aug. 2019 • Research subject: Market Expectation with LPDDR5 Benchmarking using mobile Application Tester
<p>PUBLICATIONS AND PATENTS</p>	<p>[1] Kyungmin Baek, and Deog-Kyoon Jeong, “Designing Digitally Controlled Oscillator using Four-Stage Ring Oscillator for 8-phase 8GHz All Digital Phase-Locked Loop”, <i>Summer Annual Conference of ISE</i>, Jul. 2021.</p> <p>[2] Kyungmin Baek, and Deog-Kyoon Jeong, “A 2~5GHz Phase-Locked Loop for BOST Based on a Four-Stage Pseudo-Differential Ring Oscillator”, <i>Summer Annual Conference of IEIE</i>, Jul. 2022.</p> <p>[3] Daeho Yun, Eonhui Lee, Woosong Jung, Kahyun Kim, Kyungmin Baek, and Deog-Kyoon Jeong, “A 32-Gb/s PAM4-Binary Bridge with Sampler Offset Cancellation for Memory Testing.”, <i>IEEE Transactions on Circuits and Systems II</i>, Apr. 2022.</p> <p>[4] Kyungmin Baek, Kahyun Kim, and Deog-Kyoon Jeong “A 5GHz All-Digital PLL with shunt regulating Ring DCO in BOST for DDR5 ATE”, <i>19th International SoC Design Conference (ISOCC)</i>, Oct. 2022.</p> <p>[5] Chan-Ho Kye, Jihee Kim, Kyungmin Baek, and Deog-Kyoon Jeong “A 10Gb/s/pin DQS and WCK Built-Out Tester for LPDDR5 DRAM Tset”, <i>Asian Solid-State Circuits Conference (A-SSCC)</i>, Nov. 2022.</p> <p>[6] Kyungmin Baek, Kahyun Kim, and Deog-Kyoon Jeong “A Supply Noise-Insensitive Ring DCO with an NMOS shunt Regulator Array in 8-GHz All-Digital PLL”, (in progress)</p>
<p>HARDWARE AND SOFTWARE SKILLS</p>	<p>Hardware Tools:</p> <ul style="list-style-type: none"> • Virtuoso, HSPICE, FineSim, Verilog, OrCAD PCB design <p>Simulation Tools & Computer Programming:</p> <ul style="list-style-type: none"> • Matlab, C++, Python, PyTorch, TensorFlow
<p>EXTRACURRI CULAR ACTIVITIES</p>	<p>Volunteering</p> <ul style="list-style-type: none"> • Elementary school student after school mentoring, Gwanak local teenager& children center, 2016 • Elementary school student after school mathematics class, 19th Fighter Wing, Republic Of Korea Air Force, 2017 to 2018 • Helping blind people, Hanbit school for blind, 2019 <p>Other Activities</p> <ul style="list-style-type: none"> • Samsung Electronics Volunteer Membership, Samsung Electronics CSR, 2019 to 2020 • Campus Mentoring Program mentor, Center for Campus Life & Culture, Seoul National University, 2019 • Baseball club Lullu Lightnings team member & captain, Dept. of Electrical and Computer Engineering, Seoul National University, from 2015