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(19) **United States**(12) **Patent Application Publication****Deptuch et al.**(10) **Pub. No.: US 2023/0231746 A1**(43) **Pub. Date:****Jul. 20, 2023**(54) **USER-CONFIGURABLE HIGH-SPEED LINE DRIVER**(71) Applicant: **Brookhaven Science Associates, LLC**,
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Mandal, Merrick, NY (US)(21) Appl. No.: **18/151,171**(22) Filed: **Jan. 6, 2023****Related U.S. Application Data**(60) Provisional application No. 63/297,198, filed on Jan.
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ABSTRACT

An adaptive line driver circuit configured to transmit a signal over a wired link includes a delay-locked loop (DLL) circuit, which includes a phase detector (PD) circuit, charge pump (CP) circuit, and voltage-controlled delay line (VCDL) circuit operatively coupled together. The delay-locked loop circuit provides pre-emphasis and feed-forward equalization of the signal. The delay locked loop circuit also provides a user-configurable parameter including at least one of pre-data tap amplitude, data tap amplitude, post-data tap amplitude, pre-data tap duration, post-data tap duration, pre-data tap quantity, and post-data tap quantity. The adaptive line driver circuit further includes a source-series terminated (SST) driver circuit operatively coupled to the delay-locked loop circuit.

