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Chern et al.(10) **Pub. No.: US 2022/0368326 A1**(43) **Pub. Date: Nov. 17, 2022**(54) **GENERATING HIGH DYNAMIC VOLTAGE BOOST****Publication Classification**(71) Applicant: **Taiwan Semiconductor Manufacturing Company Limited**,
Hsinchu (TW)(72) Inventors: **Chan-Hong Chern**, Palo Alto, CA (US); **Tysh-Bin Liu**, Hsinchu County (TW); **Kun-Lung Chen**, Hsinchu County (TW)(21) Appl. No.: **17/875,630**(22) Filed: **Jul. 28, 2022****Related U.S. Application Data**

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(57)

ABSTRACT

Devices, systems, and methods are provided for generating a high, dynamic voltage boost. An integrated circuit (IC) includes a driving circuit having a first stage and a second stage. The driving circuit is configured to provide an overdrive voltage. The IC also includes a charge pump circuit coupled between the first stage and the second stage. The charge pump circuit is configured generate a dynamic voltage greater than the overdrive voltage. The IC also includes a bootstrap circuit coupled to the charge pump circuit, configured to further dynamically boost the overdrive voltage of the driving circuit.

