

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2024/0213067 A1 KUO et al.

Jun. 27, 2024 (43) Pub. Date:

(54) SEMICONDUCTOR FABRICATION SYSTEM AND METHOD

(71) Applicant: Taiwan Semiconductor

Manufacturing Company Limited,

Hsin-Chu (TW)

(72) Inventors: Tsung-Sheng KUO, New Taipei City (TW); Chih-Hung HUANG, Hsinchu

County (TW); Guan-Wei HUANG, Hsinchu County (TW); Ping-Yung YEN, Kaohsiung City (TW); Hsuan LEE, Tainan (TW); Jiun-Rong PAI,

Jhubei City (TW)

(21) Appl. No.: 18/601,423

(22) Filed: Mar. 11, 2024

Related U.S. Application Data

- (62) Division of application No. 16/939,820, filed on Jul. 27, 2020, now Pat. No. 11,929,273.
- Provisional application No. 62/894,303, filed on Aug. 30, 2019.

Publication Classification

(51) Int. Cl.

H01L 21/673 (2006.01)H01L 21/677 (2006.01)

U.S. Cl.

CPC .. H01L 21/67373 (2013.01); H01L 21/67303 (2013.01); H01L 21/67706 (2013.01); H01L 21/6773 (2013.01); H01L 21/67736 (2013.01)

(57) **ABSTRACT**

A system and computer-implemented method are provided for manufacturing a semiconductor electronic device. An assembler receives a jig and a boat supporting a die. The assembler includes a separator that separates the jig into a first jig portion and a second jig portion and a loader that positions the boat between the first jig portion and the second jig portion. A robot receives an assembly prepared by the assembler and manipulates a locking system that fixes an alignment of the boat relative to the first jig portion and the second jig portion to form a locked assembly. A process chamber receives the locked assembly and subjects the locked assembly to a fabrication operation.

