

CORRECTED VERSION

(19) World Intellectual Property Organization  
International Bureau



(10) International Publication Number  
**WO 2019/089065 A8**

(43) International Publication Date  
09 May 2019 (09.05.2019)

- (51) **International Patent Classification:**  
H01L 27/10 (2006.01) B81B 3/00 (2006.01)  
H01L 21/70 (2006.01)
- (21) **International Application Number:**  
PCT/US2018/000104
- (22) **International Filing Date:**  
10 April 2018 (10.04.2018)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**  
15/731,051 11 April 2017 (11.04.2017) US

MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) **Designated States** (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

- (72) **Inventor; and**
- (71) **Applicant: TARAKJI, Ahmad, Houssam** [US/US]; 4851 Kokomo Drive, Unit 5524, Sacramento, CA 95835 (US).
- (81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME,

- Declarations under Rule 4.17:**
- as to the identity of the inventor (Rule 4.17(i))
  - as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
  - as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))
  - of inventorship (Rule 4.17(iv))
  - as to non-prejudicial disclosures or exceptions to lack of novelty (Rule 4.17(v))

(54) **Title:** AN APPROACH TO THE MANUFACTURING OF MONOLITHIC 3-DIMENSIONAL HIGH-RISE INTEGRATED-CIRCUITS WITH VERTICALLY-STACKED ULTRA-THINNED SEMICONDUCTORS

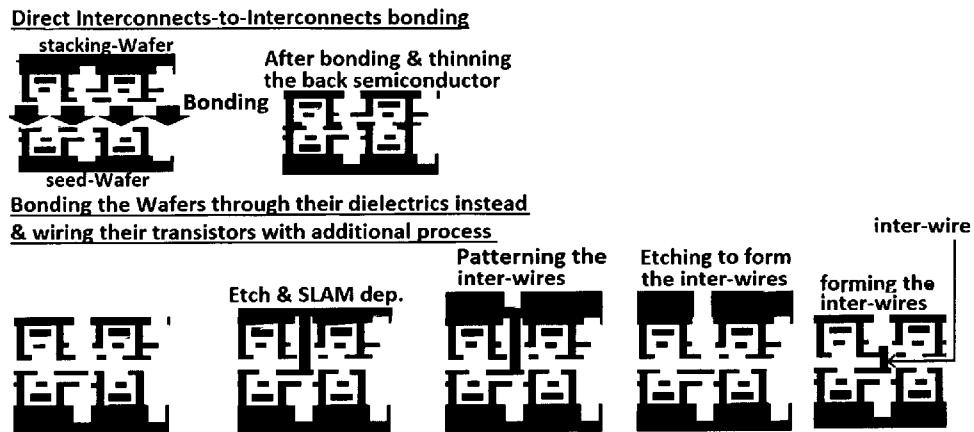


FIG. 5

(57) **Abstract:** Method to fabricate high-rise three-dimensional Integrated-Circuits (3D-ICs) is described. It has the major advantage over all the other known methods and prior arts to fabricate or manufacture 3D-ICs in that it substantially reduces RC-delays and fully eliminates or very substantially reduces the large and bulky electrically conductive Through-Silicon-VIAs in monolithic 3D integration. This enables the 3D-ICs to have faster operational speed with denser device integration.

WO 2019/089065 A8

**Published:**

- *with international search report (Art. 21(3))*
- *with amended claims (Art. 19(1))*

**(48) Date of publication of this corrected version:**

27 June 2019 (27.06.2019)

**(15) Information about Correction:**

see Notice of 27 June 2019 (27.06.2019)