THIS CIRCULAR IS IMPORTANT AND REQUIRES YOUR IMMEDIATE ATTENTION

If you are in any doubt as to any aspect of this circular or as to the action to be taken, you should consult your stockbroker or other registered dealer in securities, bank manager, solicitor, professional accountant or other professional advisors.

If you have sold or transferred all your shares in Hua Hong Semiconductor Limited, you should at once hand this circular and the accompanying form of proxy to the purchaser(s) or transferee(s) or to the bank, stockbroker or other agent through whom the sale or transfer was effected for transmission to the purchaser(s) or transferee(s).

HUA HONG SEMICONDUCTOR LIMITED
華虹半導體有限公司

(Incorporated in Hong Kong with limited liability)

(Stock Code: 1347)

DISCLOSEABLE AND CONNECTED TRANSACTION IN RELATION TO THE CAPITAL INJECTION AGREEMENT AND NOTICE OF EXTRAORDINARY GENERAL MEETING

Independent Financial Advisor to the Independent Board Committee and the Independent Shareholders

Gram Capital Limited
嘉林資本有限公司

A letter from the Independent Board Committee containing its advice to the Independent Shareholders is set out on pages 20 to 21 of this circular. A letter from Gram Capital Limited, the Independent Financial Advisor, containing its advice to the Independent Board Committee and the Independent Shareholders, is set out on pages 22 to 37 of this circular.

A notice convening the extraordinary general meeting ("**EGM**") of Hua Hong Semiconductor Limited (the "**Company**") to be held on 29 August 2022 at 2:00 p.m. with the combination of a physical meeting at Kowloon Shangri-La Hong Kong, 64 Mody Road, Kowloon, Hong Kong and a virtual meeting online is set out on pages 140 to 141 of this circular. A form of proxy for use by the Shareholders at the EGM is enclosed herein. Such form of proxy is also published on the websites of the Company (www.huahonggrace.com) and of The Stock Exchange of Hong Kong Limited (www.hkexnews.hk).

Whether or not you are able to attend the EGM, you are requested to complete the accompanying form of proxy for use at the EGM in accordance with the instructions printed thereon and return the same to the Company's share registrar, Tricor Investor Services Limited, at Level 54, Hopewell Centre, 183 Queen's Road East, Hong Kong (if the form of proxy will be deposited before 15 August 2022) or 17/F, Far East Finance Centre, 16 Harcourt Road, Hong Kong (if the form of proxy will be deposited on or after 15 August 2022), or via the designated URL (https://spot-emeeting.tricor.hk) by using the username and password provided on the notification letter sent by the Company on 9 August 2022 as soon as possible but in any event not less than 48 hours before the time appointed for the holding of the EGM or any adjournment thereof. In calculating the aforesaid 48 hours period, no account will be taken of any part of a day that is a public holiday. Accordingly, the form of proxy must be delivered not later than 2:00 p.m. on 26 August 2022. Completion and return of the form of proxy will not preclude you from attending and voting in person at the EGM or any adjourned meeting thereof should you so wish.

9 August 2022

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In this circular, unless the context otherwise requires, the following expressions have the following meanings:

"Board"	the board of Directors of the Company
"Capital Injection"	(i) the capital injection in a total sum of US$800 million into Hua Hong Wuxi, a connected subsidiary of the Company, contributed by the Company, HHGrace, the Wuxi Entity and China IC Fund II, and (ii) the issuance of share capital in Hua Hong Wuxi to each of the aforementioned subscribing shareholders pursuant to the Capital Injection Agreement
"Capital Injection Agreement"	the capital injection agreement dated 29 June 2022 entered into among the Company, HHGrace, the Wuxi Entity, China IC Fund, China IC Fund II and Hua Hong Wuxi
"China IC Fund"	China Integrated Circuit Industry Investment Fund Co., Ltd.* (國家集成電路產業投資基金股份有限公司), a company incorporated in the PRC on 26 September 2014 and a substantial shareholder of the Company
"China IC Fund II"	China Integrated Circuit Industry Investment Fund (Phase II) Co., Ltd.* (國家集成電路產業投資基金二期股份有限公司), a company established in the PRC on 22 October 2019
"Company"	Hua Hong Semiconductor Limited, a company incorporated in Hong Kong with limited liability on 21 January 2005, the shares of which are listed on the Main Board of the Stock Exchange
"Completion"	the completion of the Capital Injection in accordance with the terms of the Capital Injection Agreement
"connected person(s)"	has the same meaning as ascribed to it under the Listing Rules
"Director(s)"	the director(s) of the Company
"EGM"	the extraordinary general meeting of the Company to be held on 29 August 2022 to approve, amongst other things, the entering into the Capital Injection Agreement

"Group"	the Company and its subsidiaries
"HHGrace"	Shanghai Huahong Grace Semiconductor Manufacturing Corporation (上海華虹宏力半導體製造有限公司), a wholly foreign-owned enterprise incorporated in the PRC on January 24, 2013 and a wholly owned subsidiary of the Company
"Hong Kong"	the Hong Kong Special Administrative Region of the PRC
"Hua Hong Wuxi"	Hua Hong Semiconductor (Wuxi) Limited, a company incorporated in the PRC on 10 October 2017 and a non-wholly-owned subsidiary of the Company
"Independent Board Committee"	an independent committee of the Board that consists of all the independent non-executive Directors who have no direct or indirect interest in the Capital Injection Agreement and the transactions contemplated thereunder
"Independent Financial Advisor"	Gram Capital Limited, a corporation licensed to carry out type 6 (advising on corporate finance) regulated activity as defined under the SFO, the independent financial advisor appointed by the Company to advise the Independent Board Committee and the Independent Shareholders in respect of the Capital Injection Agreement and the transactions contemplated thereunder
"Independent Shareholder(s)"	Shareholders who are entitled to vote in the EGM in respect of the approval of the entering into the Capital Injection Agreement pursuant to the Listing Rules and all applicable laws
"Independent Third Party(ies)"	person(s) who is not a connected person of the Company pursuant to Chapter 14A of the Listing Rules
"JV Agreement"	the joint venture agreement dated 3 January 2018 entered into among the Company, HHGrace, Hua Hong Wuxi, China IC Fund and the Wuxi Entity, as supplemented from time to time
"Listing Rules"	the Rules Governing the Listing of Securities on the Stock Exchange of Hong Kong Limited
"Latest Practicable Date"	1 August 2022, being the latest practicable date prior to the printing of this circular for ascertaining certain information for inclusion in this circular

"Ministry of Finance"	the Ministry of Finance of the PRC
"Model Code"	the Model Code for Securities Transactions by Directors of Listed Issuers set out in Appendix 10 to the Listing Rules
"PRC"	the People's Republic of China, but for the purposes of this circular only, excludes Hong Kong, Macau and Taiwan
"RF"	radio frequency
"RMB"	Renminbi, the lawful currency of the PRC
"SFO"	the Securities and Futures Ordinance (Chapter 571 of the Laws of Hong Kong)
"Shareholders"	holder(s) of Shares
"Shares"	shares of the Company
"Sino IC Capital"	Sino IC Capital Co., Ltd.* (華芯投資管理有限責任公司), a company incorporated in the PRC on 27 August 2014, which is the fund manager of China IC Fund and China IC Fund II; the ultimate beneficial owner of Sino IC Capital is China Development Bank Capital Co., Ltd. (國開金融有限責任公司), which is an Independent Third Party of the Company
"Stock Exchange"	The Stock Exchange of Hong Kong Limited
"Subsidiary(ies)"	has the meaning ascribed to it under the Listing Rules
"US$"	United States dollar, the lawful currency of the United States
"Valuation Report"	the asset valuation report in respect of the shareholders' equity of Hua Hong Wuxi as of 30 June 2021 prepared by the Valuer on 10 December 2021
"Valuer"	China Enterprise Appraisals Co., Ltd. (北京中企華資產評估有限責任公司), a qualified asset valuer in the PRC
"Wuxi Entity"	Wuxi Xi Hong Lian Xin Investment Co., Ltd.* (無錫錫虹聯芯投資有限公司), a professional investment company jointly established by municipal and district-level state-owned enterprises
"%"	per cent

HUA HONG SEMICONDUCTOR LIMITED
華虹半導體有限公司

(Incorporated in Hong Kong with limited liability)

(Stock Code: 1347)

Registered Office:
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Principal Place of Business in PRC:
288 Halei Road
Zhangjiang Hi-Tech Park
Shanghai, PRC
Postcode: 201203

No. 30, Xinzhou Road Xinwu District
Wuxi, Jiangsu, PRC
Postcode: 214000

9 August 2022

To the Shareholders

Dear Sir or Madam,

DISCLOSEABLE AND CONNECTED TRANSACTION IN RELATION TO THE CAPITAL INJECTION AGREEMENT AND NOTICE OF EXTRAORDINARY GENERAL MEETING

1. INTRODUCTION

We refer to the Announcement of the Company dated 29 June 2022 in respect of the entering into of Capital Injection Agreement pursuant to which it is conditionally agreed that the registered capital of Hua Hong Wuxi will increase from US$1,800 million to approximately US$2,536.85 million, where each of the Company, HHGrace, the Wuxi Entity and China IC Fund II will contribute approximately US$177.78 million, US$230.22 million, US$160 million and US$232 million in cash, respectively as capital injection into Hua Hong Wuxi.

* *For identification purpose only*

The purpose of this circular is to provide you with, amongst other things, (i) further information of the Capital Injection Agreement, (ii) the letter from the Independent Board Committee to the Independent Shareholders, setting out its recommendations in connection with the Capital Injection Agreement, (iii) the letter from the Independent Financial Advisor setting out its recommendations to the Independent Board Committee and the Independent Shareholders in respect of the Capital Injection Agreement, and (iv) a notice to the Shareholders convening the EGM to approve the transactions contemplated under the Capital Injection Agreement and a proxy form.

2. THE CAPITAL INJECTION AGREEMENT

On 29 June 2022, the Company, HHGrace, the Wuxi Entity, China IC Fund, China IC Fund II and Hua Hong Wuxi entered into the Capital Injection Agreement pursuant to which it is conditionally agreed that the registered capital of Hua Hong Wuxi will increase from US$1,800 million to approximately US$2,536.85 million. The principal terms of the Capital Injection Agreement are as follows:

Date

29 June 2022

Parties

(i) The Company;

(ii) HHGrace, a wholly-owned subsidiary of the Company;

(iii) the Wuxi Entity;

(iv) China IC Fund;

(v) China IC Fund II; and

(vi) Hua Hong Wuxi, a non-wholly-owned subsidiary of the Company.

To the best of the Director's knowledge, inform and belief and having made all reasonable enquiries, as at the date of this circular, China IC Fund II was an Independent Third Party of the Company.

Capital Injection

Each of the Company, HHGrace, the Wuxi Entity and China IC Fund II will contribute approximately US$177.78 million, US$230.22 million, US$160 million and US$232 million in cash, respectively as capital injection into Hua Hong Wuxi, on the basis that US$1 increase in registered capital corresponds to approximately US$1.0857 of Capital Injection. The Company, HHGrace and the Wuxi Entity will exercise their rights under the JV Agreement to subscribe for the additional registered capital of Hua Hong Wuxi on a pro-rata basis. China IC Fund has surrendered such right and each of the Company, HHGrace and the Wuxi Entity has waived its rights of first refusal under the articles of association of Hua Hong Wuxi to subscribe for China IC Fund's relevant portion. As resolved unanimously by the board of Hua Hong Wuxi, the remaining portion of the Capital Injection will be taken up by China IC Fund II. Upon completion of the Capital Injection, the registered capital of Hua Hong Wuxi will be increased from US$1,800 million to approximately US$2,536.85 million, and Hua Hong Wuxi will continue to be a non-wholly owned subsidiary of the Company held as to the same proportions as before the Capital Injection by the Company and HHGrace, i.e. approximately 22.2% by the Company and approximately 28.8% by HHGrace.

Given that (i) there will be no dilution of the Company's and HHGrace's interests in Hua Hong Wuxi, (ii) there will be no change to the number and ratio of board representatives of the Company and HHGrace in Hua Hong Wuxi, (iii) Hua Hong Wuxi will remain under the control of the Company (directly and indirectly through HHGrace), and (iv) the results of Hua Hong Wuxi will continue to be consolidated into the financial statements of the Group, the Directors (including the independent non-executive Directors) are of the view that the waiver of the rights of first refusal by the Company and HHGrace is fair and reasonable, and is in the interests of the Company and the Shareholders as a whole.

The shareholding structure of Hua Hong Wuxi (i) as at the date of this circular; and (ii) immediately after completion of the Capital Injection is set out as below:

Parties	**As at the date of this circular**		**Upon completion of the Capital Injection**		
	Current registered capital *(US$ million)*	**Current equity interest**	**Capital Injection** *(US$ million)*	**Total registered capital after the Capital Injection** *(Note)* *(US$ million)*	**Equity interest after the Capital Injection**
The Company	400.00	22.22%	177.78	563.74	22.22%
HHGrace	518.00	28.78%	230.22	730.05	28.78%
The Wuxi Entity	360.00	20.00%	160.00	507.37	20.00%
China IC Fund	522.00	29.00%	N/A	522.00	20.58%
China IC Fund II	N/A	N/A	232.00	213.69	8.42%
Total	**1,800.00**	**100.00%**	**800.00**	**2,536.85**	**100%**

Note: For each US$1.0857 of the Capital Injection, the registered capital of Hua Hong Wuxi will increase by US$1.

Basis of Consideration

The respective considerations of the Capital Injection were determined after arm's length negotiations among the parties, by making reference to, amongst others, (i) the valuation of the shareholders' equity in Hua Hong Wuxi as of 30 June 2021 which was set out in the Valuation Report prepared by the Valuer, (ii) the demand for working capital of Hua Hong Wuxi in the coming years in light of its future development plans, including but not limited to building up total capacity to 94,500 wafers per month, the Company's plan to continue introducing automotive products to its 12-inch fab and to further strengthening its "8-inch + 12-inch" corporate strategy, (iii) the prospect of the semiconductor industry in general, (iv) the respective current shareholdings of the parties in Hua Hong Wuxi and (v) the reasons for and benefits of the Capital Injection as disclosed in "Reasons for and Benefits of Entering into the Capital Injection Agreement" below. The Company and HHGrace will use their own funds for their respective portions of Capital Injection to Hua Hong Wuxi.

In respect of factor (i) above, since the income approach was adopted, the performance of Hua Hong Wuxi for the period from 1 July 2021 to the date of the Capital Injection Agreement had been considered by the Valuer in arriving at the valuation set out in the Valuation Report. In addition, according to Article 10 of the "Principles for Asset Valuation – Valuation Report" (《資產評估執業準則—資產評估報告》) issued by the China Appraisal Society, it is generally acceptable to rely on a valuation report so long as the date of the economic act is within one year of the valuation date. In the case of the Capital Injection, the Capital Injection Agreement was executed within one year of the valuation date in the Valuation Report. Having considered these factors, the Board is of the view that it is fair and reasonable to determine the consideration of the Capital Injection by reference to such valuation.

Conditions Precedent

The payment of the respective portions of the Capital Injection by each of the parties is conditional upon, amongst others, the fulfillment (or waiver) of each of the below on or before 30 September 2022 (or such later date as may be agreed by the parties in writing):

(i) the Company having obtained the approval in respect of the Capital Injection by the Independent Shareholders at the EGM to authorise the entering into of the Capital Injection Agreement and the Capital Injection;

(ii) each of the Company, Hua Hong Wuxi, HHGrace, the Wuxi Entity, China IC Fund and China IC Fund II having obtained their respective internal approvals to authorise the entering into of the Capital Injection Agreement and the Capital Injection; and

(iii) Hua Hong Wuxi having (1) obtained the necessary approvals from, (2) completed the requisite filings with the relevant PRC government departments in respect of the Capital Injection, and (3) completed the registration with the relevant administration of industry and commerce of the PRC government.

For the avoidance of doubt, the Company's obligation to seek internal approval and Independent Shareholders' approval under conditions (i) and (ii) above in compliance with Chapter 14A of the Listing Rules cannot be waived under the Capital Injection Agreement.

As at the Latest Practicable Date, condition (ii) had been fulfilled. In respect of condition (iii), Hua Hong Wuxi has completed the relevant State-owned assets approval process (including the asset assessment application process (國有資產評估備案流程) and the capital increase approval process) and such other necessary governmental approvals. The remaining administration for industry and commerce and MOFCOM registration process are expected to be completed after the EGM.

Hua Hong Wuxi shall notify each of the Company, HHGrace, the Wuxi Entity and China IC Fund II in writing within two business days upon the fulfilment (or waiver) of all of the conditions precedent.

Payment terms and completion

Within 30 business days of the receipt of the notification stated above, each of the parties involved in the Capital Injection shall subscribe for the increased share capital of Hua Hong Wuxi in cash in the RMB equivalent of their respective portions under the Capital Injection Agreement, save that the Company shall make its contribution in RMB by way of reinvestment using dividends payable by HHGrace to the Company (and in US$ in cash to the extent that such dividends are insufficient to cover the Company's portion of the Capital Injection). The Capital Injection shall be completed when the Capital Injection has been paid in full.

Corporate Governance of Hua Hong Wuxi after the Capital Injection

China IC Fund II has entered into a supplemental JV Agreement with Hua Hong Wuxi, the Company, HHGrace, the Wuxi Entity and China IC Fund, pursuant to which China IC Fund II will enjoy the same existing shareholder's rights upon completion of the Capital Injection. China IC Fund currently has the right to appoint two (out of seven) directors to the board of Hua Hong Wuxi. Upon completion of the Capital Injection, each of China IC Fund and China IC Fund II will have the right to appoint one director to the board, while the remaining seats will continue to be filled by representatives of the Company, HHGrace, the Wuxi Entity and employees of Hua Hong Wuxi in the same number and ratio as before the Capital Injection. China IC Fund, China IC Fund II and the Wuxi Entity, being the minority shareholders of Hua Hong Wuxi, will have the right to make suggestions and to discuss with Hua Hong Wuxi, the Company and/or HHGrace in relation to the operation and management of the Hua Hong Wuxi and its subsidiaries. Further, the articles of association of Hua Hong Wuxi will also be amended as appropriate to reflect the terms agreed under the Capital Injection Agreement.

However, given both (i) the respective shareholdings of the Company, HHGrace and the Wuxi Entity in Hua Hong Wuxi and (ii) the number and ratio of board representatives of the Company and HHGrace in Hua Hong Wuxi will remain unchanged upon completion of the Capital Injection, matters in relation to corporate governance of Hua Hong Wuxi, including the rights of the Company and HHGrace under the JV Agreement, will not be affected by the Capital Injection. For details, please refer to the circular of the Company dated 3 January 2018.

3. VALUATION

Since the appraisal of the shareholders' equity in Hua Hong Wuxi as of 30 June 2021 set out in the Valuation Report, to which reference is made when determining the consideration of the Capital Injection, is reached by adopting the income approach based on the discounted cash flow method, such valuation constitutes a profit forecast under Rule 14.61 of the Listing Rules.

The Board has reviewed the principal assumptions contained in the Valuation Report and is of the view that such profit forecast was made after due and careful enquiry. Ernst & Young, the reporting accountants of the Company, has reviewed the calculation of the discounted cash flow approach upon which the Valuation Report was based.

In compliance with Rules 14.60A and 14.62 of the Listing Rules, (i) the Valuation Report containing the principal assumptions (including commercial assumptions) for preparing such valuation, (ii) the letter from Ernst & Young and (iii) the letter from the Board in relation to such profit forecast as required under the Listing Rules are set out as Appendices I, II and III incorporated and appended to this circular respectively.

The following are the qualifications of the Valuer and Ernst & Young:

Name	**Qualification**
China Enterprise Appraisals Co., Ltd. (北京中企華資產評估有限責任公司)	Qualified Asset Valuer in the PRC
Ernst & Young	Certified Public Accountant

To the best knowledge, information and belief of the Board after having made all reasonable enquiries, each of the Valuer and Ernst & Young is an Independent Third Party of the Company. As at the date of this circular, neither the Valuer nor Ernst & Young has any shareholding, directly or indirectly, in any member of the Group or any right (whether legally enforceable or not) to subscribe for or to nominate person(s) to subscribe for securities in any member of the Group.

Each of the Valuer and Ernst & Young has given and has not withdrawn its respective written consent to the publication of this circular with inclusion of its opinion and advice and all references to its name in the form and context in which it appears in this circular.

4. INFORMATION ABOUT HUA HONG WUXI

Hua Hong Wuxi is a company incorporated in the PRC on 10 October 2017, and a non-wholly owned subsidiary of the Company. Upon completion of the Capital Injection, Hua Hong Wuxi will continue to be a non-wholly owned subsidiary of the Company be held as to approximately 22.2% by the Company and approximately 28.8% by HHGrace. It is principally engaged in the design, research, manufacturing, testing, packaging and sale of integrated circuits fabricated on 12-inch (300mm) wafers.

Based on the financial statements of Hua Hong Wuxi prepared in accordance with generally accepted accounting principles in the PRC, the financial information of Hua Hong Wuxi for the three years ended 31 December 2019, 2020 and 2021 were as follows:

	For the year ended 31 December 2019 *(audited)* *(RMB)*	**For the year ended 31 December 2020** *(audited)* *(RMB)*	**For the year ended 31 December 2021** *(audited)* *(RMB)*
Revenue	56,758,382.66	439,407,811.84	3,102,526,630.89
Loss before and after tax *(Note)*	(111,623,530.91)	(935,901,969.71)	(402,423,609.81)

Note: As Hua Hong Wuxi recorded loss in each of the above financial periods, no income tax was chargeable.

According to the Valuation Report, as at 30 June 2021, (i) the appraised net asset value of Hua Hong Wuxi was approximately RMB10,758,848,100 and (ii) the appraised value of the total shareholders' equity of Hua Hong Wuxi was approximately RMB13,038,560,000, which was determined based on income approach with discounted cash flow method in accordance with the relevant PRC laws and regulations.

5. REASONS FOR AND BENEFITS OF ENTERING INTO THE CAPITAL INJECTION AGREEMENT

(1) Industry overview

Since the establishment of Hua Hong Wuxi in 2018, the development of Internet, big data, artificial intelligence and new energy vehicles has continued to drive up the demand for its 12-inch (300 mm) products in recent years. Meanwhile, the global semiconductor and chips shortage is expected to last beyond 2022, especially in the automobile sector which is one of the Company's areas of focus. Alongside the strong demand for semiconductor products, the PRC government has rolled out various long-term policies in support of the growth and development of the semiconductor industry in the PRC, including "Several Policies to Promote the High-Quality Development of the Integrated Circuit Industry and the Software Industry in the New Era" (《新時期促進積體電路產業和軟體產業高品質發展若干政策》) and the "14th Five-Year Plan for Economic and Social Development of the PRC and the Long-Range Objectives Through the Year 2035" (《中華人民共和國國民經濟和社會發展第十四個五年規劃和2035年遠景目標綱要》) in March 2021.

(2) Reasons for and benefits of entering into the Capital Injection Agreement

(i) Hua Hong Wuxi's production capacity

The 12-inch (300mm) fab of Hua Hong Wuxi is entering its fourth year of operation in 2022. Despite its continued capacity expansion, Hua Hong Wuxi, with its current capacity, is still unable to meet the robust demand for wafers resulting from market development. The capacity utilization rate of Hua Hong Wuxi remained at a very high level. In the financial years 2020 and 2021, Hua Hong Wuxi has fulfilled all the Company's internal business objectives in technology development, production capacity expansion and product delivery.

(ii) Strong market demand of 12-inch (300mm) wafers

In addition, the imbalance between demand and supply in the global semiconductor and chips is expected to last beyond 2022, especially in the automobile sector, one of the sectors which the Company focuses on. Hua Hong Wuxi obtained the IATF16949 automotive quality certification in 2020 and has been introducing automotive products to its 12-inch fab since 2021. Coupled with the proposed Capital Injection, the technical expertise of Hua Hong Wuxi would enable the Company to further fulfill the demands from the automobile market. The Company expects to capture and capitalize on this attractive and significant market opportunity to ensure that Hua Hong Wuxi has sufficient working capital to expand the production capacity of its 12-inch (300mm) wafers. As Hua Hong Wuxi remains to be an indirect non-wholly owned subsidiary of the Company upon completion of the Capital Injection, the Company expects to generate favourable financial returns from such capital commitment in the medium-to-long term in the 12-inch wafer market.

(iii) The Company's expansion plan and strategies

In light of the strong performance of Hua Hong Wuxi and the Company's "8-inch + 12-inch" corporate strategy, the Company will continue to expand the capacity of its 12-inch wafer production line in 2022. The Capital Injection falls in line with the Company's strategy to strengthen its leading market position and competitiveness in both 8-inch (200mm) and 12-inch (300mm) wafer foundry industries in terms of proprietary technology.

(iv) Cooperation with China IC Fund II and the Wuxi Entity

By strengthening our cooperation with China IC Fund II and the Wuxi Entity, Hua Hong Wuxi would also be able to benefit from certain policies of the Wuxi Municipal People's Government of the PRC in relation to the recruitment of talent, financing discounts and land subsidies, all of which would facilitate the development of its production lines. Such benefits are unlikely to be available, wholly or partially, if the Company decided to engage other investors for the Capital Injection.

(3) Potential Disadvantages

Notwithstanding the cash outlay of the Company and HHGrace for the settlement of the Capital Injection, the Company is not aware of any material disadvantage brought by the Capital Injection Agreement and the transactions contemplated thereunder.

(4) Summary

Given (i) the robust demand for the 12-inch (300mm) wafers globally, (ii) the favourable national policies of the PRC in support of the development of the semiconductor sector, (iii) the production capacity of Hua Hong Wuxi has been mostly utilised, (iv) the expected medium-to-long term financial returns generated from the Company's capital commitment in Hua Hong Wuxi, the Directors (including the independent non-executive Directors) have confirmed that the terms of the Capital Injection Agreement were entered into by the Company after arm's length negotiations with the relevant parties and the terms set out therein are fair and reasonable and in the interests of the Company and its Shareholders as a whole.

6. INFORMATION ABOUT THE PARTIES

The Company

The Company primarily focuses on embedded non-volatile memory, power discrete, analog & power management, logic & RF and other specialty technology manufacturing platforms.

HHGrace

HHGrace is a wholly foreign owned enterprise incorporated in the PRC on January 24, 2013 and a wholly-owned subsidiary of the Company. The principal business of HHGrace is to research, develop, manufacture and sell semiconductors as a pure-play foundry.

China IC Fund

China IC Fund mainly invests in the value chain of integrated circuit industry via equity investment, primarily in integrated circuit chip manufacturing as well as chip designing, packaging test and equipment and materials. As at the Latest Practicable Date and based on information provided by China IC Fund, there were 16 fund investors in China IC Fund, as set out below:

Fund investor	**Percentage of equity interest**
Ministry of Finance[#]	36.47%
China Development Bank Capital Co., Ltd. (國開金融有限責任公司)[#]	22.29%
China National Tobacco Corporation (中國煙草總公司)[#]	11.14%
Beijing E-Town International Investment & Development Co., Ltd. (北京亦莊國際投資發展有限公司)[#]	10.13%
Shanghai Guosheng (Group) Co., Ltd. (上海國盛(集團)有限公司)[#]	5.06%
Wuhan Financial Holdings (Group) Co., Ltd. (武漢金融控股(集團)有限公司)	5.06%
China Mobile Communications Group Co., Ltd. (中國移動通信集團有限公司)[#1]	5.06%
China Telecommunications Corporation (中國電信集團有限公司)[#]	1.42%
China United Network Communications Group Co., Ltd. (中國聯合網絡通信集團有限公司)[#2]	1.42%
China Electronics Corporation (中國電子信息產業集團有限公司)[#]	0.51%
Datang Telecom Technology & Industry Holdings Co., Ltd. (大唐電信科技產業控股有限公司)	0.51%
China Electronics Technology Investment Holding Co., Ltd. (中電科投資控股有限公司)	0.51%
Sino IC Capital[#]	0.12%
Shanghai Summitview Pujiang Equity Investment Partnership (L.P.) (上海武岳峰浦江股權投資合夥企業(有限合夥))[#3]	0.10%
Fujian San'an Group Co., Ltd. (福建三安集團有限公司)[#]	0.10%
Beijing Unis Communications Technology Group Ltd. (北京紫光通信科技集團有限公司)[#]	0.10%
Total:	**100.00%**

Notes:

\# Denotes an overlapping shareholder of China IC Fund and China IC Fund II.

1. China Mobile Communications Group Co., Ltd. holds 100% of the equity interest in China Mobile Capital Holding Co., Ltd., which is a fund investor in China IC Fund II.

2. China United Network Communications Group Co., Ltd. holds 100% of the equity interest in Unicom Capital Investment Holding Co., Ltd., which is a fund investor in China IC Fund II.

3. Shanghai Summitview Pujiang Equity Investment Partnership (L.P.) is managed by Shanghai Jiatou Yueying Investment Management Partnership (L.P.) (上海嘉投岳盈投資管理合夥企業(有限合夥), "**Shanghai Jiatou**"), which is in turn managed by Shanghai Lingtou Investment Management Co., Ltd. (上海嶺投投資管理有限公司, "**Shanghai Lingtou**"). Shanghai Lingtou is also the managing partner of Shanghai Siqi Enterprise Management Partnership (L.P.), which is a fund investor in China IC Fund II.

China IC Fund is not regarded as a subsidiary of its single largest shareholder, the Ministry of Finance. Save for the Ministry of Finance, there is no ultimate beneficial owner who controls, directly or indirectly, one-third or more of the equity interest in China IC Fund.

China IC Fund is managed by Sino IC Capital. The voting right of Sino IC Capital (as a shareholder but not as the fund manager) at shareholders' meetings of China IC Fund is proportional to its shareholding interest in China IC Fund.

China IC Fund II

China IC Fund II mainly invests in the value chain of integrated circuit industry via equity investment, primarily in integrated circuit chip manufacturing as well as chip designing, packaging test and equipment and materials. As at the Latest Practicable Date and based on information provided by China IC Fund, there were 27 fund investors in China IC Fund II, as set out below:

Fund investor	**Percentage of equity interest**
Ministry of Finance[#]	11.02%
China Development Bank Capital Co., Ltd. (國開金融有限責任公司)[#]	10.78%
Chongqing Strategic Emerging Industry Equity Investment Fund Partnership (Limited Partnership) (重慶戰略性新興產業股權投資基金合夥企業(有限合夥))	7.35%
Chengdu Tianfu Guoji Investment Co., Ltd. (成都天府國集投資有限公司)	7.35%
Wuhan Optics Valley Financial Holding Group Co., Ltd. (武漢光谷金融控股集團有限公司)	7.35%
Zhejiang Fuzhe Integrated Circuit Industry Development Co., Ltd. (浙江富浙集成電路產業發展有限公司)	7.35%
China National Tobacco Corporation (中國煙草總公司)[#]	7.35%
Shanghai Guosheng (Group) Co., Ltd. (上海國盛(集團)有限公司)[#]	7.35%
Beijing E-Town International Investment & Development Co., Ltd. (北京亦莊國際投資發展有限公司)[#]	4.90%
Jiangsu Wanquan Integrated Circuit Industry Investment Co., Ltd. (江蘇聿泉集成電路產業投資有限公司)	4.90%
Beijing Guoyi Hospital Co., Ltd. (北京國誼醫院有限公司)	4.90%
China Mobile Capital Holding Co., Ltd. (中移資本控股有限責任公司)[#]	4.90%
Anhui Xinhuo IC Industry Investment Partnership (Limited Partnership) (安徽省芯火集成電路產業投資合夥企業(有限合夥))	3.67%

Fund investor	Percentage of equity interest
Anhui Wantou Anhua Modern Industrial Investment Partnership (Limited Partnership) (安徽皖投安華現代產業投資合夥企業(有限合夥))	3.67%
Guangzhou Industrial Investment Fund Management Co., Ltd. (廣州產業投資基金管理有限公司)	1.47%
Fujian State Owned Integrated Circuit Investment Co., Ltd. (福建省國資集成電路投資有限公司)	1.47%
Shenzhen Shenchao Technology Investment Co., Ltd. (深圳市深超科技投資有限公司)	1.47%
Huangpu Investment Holding (Guangzhou) Co., Ltd. (黃埔投資控股(廣州)有限公司)	0.98%
China Telecommunications Corporation (中國電信集團有限公司)#	0.73%
Unicom Capital Investment Holding Co., Ltd. (聯通資本投資控股有限公司)#	0.49%
China Electronics Corporation (中國電子信息產業集團有限公司)#	0.24%
Sino IC Capital#	0.07%
Shanghai Siqi Enterprise Management Partnership (Limited Partnership) (上海矽啟企業管理合夥企業(有限合夥))#	0.05%
Beijing Jianguang Asset Management Co., Ltd. (北京建廣資產管理有限公司)	0.05%
Fujian San'an Group Co., Ltd. (福建三安集團有限公司)#	0.05%
Beijing Unis Communications Technology Group Ltd. (北京紫光通信科技集團有限公司)#	0.05%
GCL Capital Management Co., Ltd. (協鑫資本管理有限公司)	0.05%
Total:	**100.00%**

Notes: # denotes an overlapping shareholder of China IC Fund and China IC Fund II.

China IC Fund II is not regarded as a subsidiary of its single largest shareholder, the Ministry of Finance. There is no ultimate beneficial owner who controls, directly or indirectly, one-third or more of the equity interest in China IC Fund II.

China IC Fund II is managed by Sino IC Capital. The voting right of Sino IC Capital (as a shareholder but not as the fund manager) at shareholders' meetings of China IC Fund II is proportional to its shareholding interest in China IC Fund II.

To the best of the Directors' knowledge, information and belief and having made all reasonable enquiry, the Directors are of the view, and each of China IC Fund and China IC Fund II confirms, that China IC Fund II is an Independent Third Party of the Company and Sino IC Capital does not control China IC Fund nor China IC Fund II because (i) there is no ultimate beneficial owner directly or indirectly controlling China IC Fund II, (ii) China IC Fund and China IC Fund II are not regarded as subsidiaries of their single largest shareholder, (iii) none of the 13 overlapping shareholders of China IC Fund and China IC Fund II can exert majority control over both China IC Fund and China IC Fund II and (iv) Sino IC Capital manages the investments of China IC Fund and China IC Fund II in accordance with the respective mandates it entered into with China IC Fund and China IC Fund II separately. In particular, based on the information from Sino IC Capital, China IC Fund and China IC Fund II have established independent investment policies and management processes, appointed independent committee members in their respective investment committees to ensure independence in investment decisions, and each has its separate accounts with independent financial accounting treatments. On the above basis, the Company confirms that China IC Fund II is not an associate of China IC Fund under Chapter 14A of the Listing Rules.

Based on the information provided by China IC Fund II and to the best knowledge of the Company, China IC Fund II is an experienced investor in the integrated circuit industry and it has invested in several listed and non-listed companies in the integrated circuit manufacturing field as a substantial shareholder or in certain cases as a controlling shareholder in such entities, which may include entities that engage in businesses which are in competition with the Company and/or Hua Hong Wuxi. Save for such investments, based on the confirmation from China IC Fund II and to the best knowledge of the Company, China IC Fund II itself does not engage in any other businesses which are in competition with the Company and/or Hua Hong Wuxi.

The Wuxi Entity

The Wuxi Entity is a professional investment company jointly established by municipal and district-level state-owned enterprises. It principally engages in equity investment in major semiconductor projects in Wuxi. As at the Latest Practicable Date, the Wuxi Entity was held as to 38.50% by Wuxi Guolian Industrial Investment Group Co., Ltd.* (無錫國聯實業投資集團有限公司), 26.00% by Wuxi Hi-Tech District City Investment Development Co., Ltd.* (無錫高新區城市投資發展有限公司), 19.00% by Wuxi Xinfa Group Co., Ltd.* (無錫市新發集團有限公司) and 16.50% by Wuxi Industry Development Group Co., Ltd. (無錫產業發展集團有限公司).

7. IMPLICATIONS UNDER THE LISTING RULES

As at the date of this circular, Hua Hong Wuxi is a non-wholly owned subsidiary which is held as to approximately 29% by China IC Fund, a substantial shareholder of the Company. Further, the Wuxi Entity is a connected person at the subsidiary level because it holds 20% of Hua Hong Wuxi as the latter's substantial shareholder. Accordingly, each of Hua Hong Wuxi and China IC Fund is a connected person of the Company, and the transactions contemplated under the Capital Injection Agreement constitute connected transactions of the Company under Chapter 14A of the Listing Rules.

As one or more of the applicable percentage ratios under Rule 14.07 of the Listing Rules in respect of the Capital Injection Agreement exceeds 5% but all are below 25%, the entering into of the Capital Injection Agreement constitutes (i) a discloseable transaction, which is subject to the reporting and announcement requirements, and (ii) a non-exempt connected transaction, which is subject to annual reporting, announcement and the Independent Shareholders' approval requirements under Chapter 14A of the Listing Rules.

As China IC Fund is a connected person of the Company and China IC Fund II is a party to the Capital Injection Agreement,

(i) Xinxin (Hongkong) Capital Co., Limited, a wholly-owned subsidiary of China IC Fund will abstain from voting on the ordinary resolution proposed at the EGM to approve the Capital Injection Agreement. As at the Latest Practicable Date, Xinxin (Hongkong) Capital Co., Limited held 178,705,925 Shares, representing approximately 13.7% of the total number of issued Shares. To the best of the Director's knowledge, inform and belief and having made all reasonable enquiries, as of the Latest Practicable Date, apart from Xinxin (Hongkong) Capital Co., Limited, no other Shareholder will be required to abstain from voting on this resolution at the EGM; and

(ii) Mr. Guodong Sun, a non-executive Director of the Company, is currently the managing director of Sino IC Capital, the fund manager of China IC Fund and China IC Fund II. Therefore, he is considered to have a material interest in the Capital Injection Agreement and thus abstained from voting at the Board meeting authorising the entering into of the Capital Injection Agreement. Apart from Mr. Guodong Sun, no Director is considered to have a material interest in the Capital Injection Agreement and was required to abstain from voting at the Board meeting authorising the entering into of the Capital Injection Agreement.

The completion of the Capital Injection is subject to the fulfilment (or waiver) of certain conditions precedent set out in the Capital Injection Agreement, including Independent Shareholders' approval at the EGM, and therefore may or may not proceed. Shareholders and potential investors of the Company are advised to exercise caution when dealing in the Shares.

8. INDEPENDENT BOARD COMMITTEE AND INDEPENDENT FINANCIAL ADVISOR

In accordance with the Listing Rules, the Company has established an Independent Board Committee comprising of Mr. Stephen Tso Tung Chang, Mr. Kwai Huen Wong, JP and Mr. Long Fei Ye, being all of the independent non-executive Directors, to advise and provide recommendation to the Independent Shareholders on the Capital Injection Agreement and the transactions contemplated thereunder and to advise the Independent Shareholders on how to vote. The view of the Independent Board Committee has been set out in the section headed "Letter from the Independent Board Committee."

Gram Capital Limited has been appointed as the Independent Financial Advisor to advise the Independent Board Committee and the Independent Shareholders on the Capital Injection Agreement and the transactions contemplated thereunder. The view of the Independent Financial Advisor has been set out in the section headed "Letter from the Independent Financial Advisor".

9. EXTRAORDINARY GENERAL MEETING AND PROXY ARRANGEMENT

A notice of the EGM, which contains the resolution to approve the entering into of the Capital Injection Agreement and the transactions contemplated thereunder, is set out on pages 140 to 141 of this circular.

In light of the ongoing COVID-19 pandemic, the Company will conduct a hybrid extraordinary general meeting with the combination of a physical meeting and a virtual meeting online. Shareholders will have the option of joining the EGM either (a) through the physical meeting at Kowloon Shangri-La Hong Kong, 64 Mody Road, Kowloon, Hong Kong; or (b) through the Internet by using their computer, tablet device or smartphone. Registered Shareholders will be able to attend the EGM, vote and submit questions online. Non-registered Shareholders whose Shares are held in the Central Clearing and Settlement System through banks, brokers, custodians or Hong Kong Securities Clearing Company Limited may also be able to attend the EGM, vote and submit questions online. In this regard, they should consult directly with their banks, brokers or custodians (as the case may be) for the necessary arrangements.

A form of proxy for use at the EGM is enclosed with this circular and such form of proxy is also published on the websites of Hong Kong Exchanges and Clearing Limited (www.hkexnews.hk) and the Company (www.huahonggrace.com). To be valid, the form of proxy must be completed and signed in accordance with the instructions printed thereon and deposited at the Company's share registrar, Tricor Investor Services Limited, at Level 54, Hopewell Centre, 183 Queen's Road East, Hong Kong (if the form of proxy will be deposited before 15 August 2022) or 17/F, Far East Finance Centre, 16 Harcourt Road, Hong Kong (if the form of proxy will be deposited on or after 15 August 2022) as soon as possible but in any event not less than 48 hours before the time appointed for holding the EGM or any adjournment thereof. In calculating the aforesaid 48 hours period, no account will be taken of any part of

a day that is a public holiday. Accordingly, the form of proxy must be delivered not later than 2:00 p.m. on 26 August 2022. Completion and delivery of the form of proxy will not preclude you from attending and voting at the EGM if you so wish.

For determining the entitlement to attend and vote at the EGM, the register of members of the Company will be closed from Wednesday, 24 August 2022 to Monday, 29 August 2022 (both days inclusive), during which period no transfer of Shares in the Company will be registered. In order to qualify for attending and voting at the EGM, all transfers, accompanied by the relevant certificates, must be lodged with the the Company's share registrar, Tricor Investor Services Limited, at Level 54, Hopewell Centre, 183 Queen's Road East, Hong Kong (if the transfer documents will be lodged before 15 August 2022) or 17/F, Far East Finance Centre, 16 Harcourt Road, Hong Kong (if the transfer documents will be lodged on or after 15 August 2022) by no later than 4:30 p.m. on Tuesday, 23 August 2022. All persons who are registered holders of the Shares on Monday, 29 August 2022, the record date for the EGM, will be entitled to attend and vote at the EGM.

10. VOTING BY WAY OF POLL

Pursuant to Rule 13.39(4) of the Listing Rules, any vote of the Shareholders at a general meeting must be taken by poll except where the chairman of the general meeting, in good faith, decides to allow a resolution which relates purely to a procedural or administrative matter to be voted on by a show of hands. The chairman of the EGM shall therefore demand voting on the resolution set out in the notice of the EGM be taken by way of poll. An announcement on the poll vote results will be published by the Company after the EGM in the manner prescribed under Rule 13.39(5) of the Listing Rules.

To the best knowledge, information and belief of the Directors, having made all reasonable enquiries, there is (i) no voting trust or other agreement or arrangement or understanding entered into by or binding upon any Shareholders; and (ii) no obligation or entitlement of any Shareholder as at the Latest Practicable Date, whereby such Shareholder had or might have temporarily or permanently passed control over the exercise of the voting right in respect of its/his Shares to a third party, either generally or on a case-by-case basis.

11. RECOMMENDATION

Having reviewed the terms of the Capital Injection Agreement, the Directors (including the independent non-executive Directors) are of the view that:

(a) the terms of the Capital Injection Agreement are fair and reasonable and on normal commercial terms or better; and

(b) the entering into of the Capital Injection Agreement is in the ordinary and usual course of business of the Company and is in the interest of the Company and its Shareholders as a whole.

Accordingly, the Board recommends the Independent Shareholders to vote in favour of the ordinary resolution to be proposed at the EGM to approve the Capital Injection Agreement and the transactions contemplated thereunder.

12. FURTHER INFORMATION

Your attention is also drawn to:

(a) the letter from the Independent Board Committee, the text of which is set out on pages 20 to 21 of this circular;

(b) the letter from the Independent Financial Advisor, the text of which is set out on pages 22 to 37 of this circular; and

(c) the additional information set out in the appendices to this circular.

Yours faithfully,
On behalf of the Board
Hua Hong Semiconductor Limited
Mr. Suxin Zhang
Chairman and Executive Director

Set out below is the text of the letter of recommendation from the Independent Board Committee to the Independent Shareholders in connection with the entering into of the Capital Injection Agreement for inclusion in this circular.

HUA HONG SEMICONDUCTOR LIMITED
華虹半導體有限公司
(Incorporated in Hong Kong with limited liability)
(Stock Code: 1347)

To the Independent Shareholders

Dear Sir or Madam

DISCLOSEABLE AND CONNECTED TRANSACTION IN RELATION TO THE CAPITAL INJECTION AGREEMENT AND NOTICE OF EXTRAORDINARY GENERAL MEETING

We refer to the circular dated 9 August 2022 (the "**Circular**") issued by the Company to the Shareholders of which this letter forms part of. Unless the context otherwise requires, terms used in this letter shall have the same meanings given to them in the Circular.

We have been appointed by the Board as the Independent Board Committee to consider and advise the Independent Shareholders as to whether the terms of the Capital Injection Agreement are fair and reasonable, and whether the entering into of the Capital Injection Agreement and the transactions contemplated thereunder are on normal commercial terms or better, in the ordinary and usual course of business of the Company and in the interests of the Company and the Shareholders as a whole, and to advise the Independent Shareholders on how to vote, taking into account the recommendations of the Independent Financial Advisor.

Gram Capital Limited has been appointed as the Independent Financial Advisor to advise the Independent Board Committee and the Independent Shareholders as to whether the terms of the Capital Injection Agreement are fair and reasonable, and whether the entering into of the Capital Injection Agreement are on normal commercial terms or better, in the ordinary and usual course of business of the Company and in the interests of the Company and the Shareholders as a whole, and to advise the Independent Shareholders on how to vote. Details of its advice, together with the principal factors and reasons taken into consideration in arriving at such advice, are set out on pages 22 to 37 of this Circular.

We, having taken into account the advice of Independent Financial Advisor, consider that the terms of the Capital Injection Agreement are on normal commercial terms and are fair and reasonable so far as the Independent Shareholders are concerned, and the entering into of the Capital Injection Agreement, while not in the ordinary and usual course of business of the Group, is in the interests of the Company and the Shareholders as a whole.

Accordingly, we recommend the Independent Shareholders to vote in favour of the ordinary resolution to be proposed at the EGM. Your attention is also drawn to the letter from the Board set out on pages 4 to 19 of the Circular and the additional information set out in the appendices to the Circular.

Yours faithfully,
Independent Board Committee
Stephen Tso Tung Chang
Kwai Huen Wong, JP
Long Fei Ye
Independent Non-Executive Directors

Set out below is the text of a letter received from Gram Capital, the Independent Financial Adviser to the Independent Board Committee and Independent Shareholders in respect of the Capital Injection for the purpose of inclusion in this circular.

Gram Capital Limited
嘉林資本有限公司

Room 1209, 12/F.
Nan Fung Tower
88 Connaught Road Central/
173 Des Voeux Road Central
Hong Kong

9 August 2022

*To: The Independent Board Committee and the Independent Shareholders of Hua Hong Semiconductor Limited**

Dear Sir/Madam,

DISCLOSEABLE AND CONNECTED TRANSACTION IN RELATION TO THE CAPITAL INJECTION AGREEMENT

INTRODUCTION

We refer to our appointment as the Independent Financial Adviser to advise the Independent Board Committee and the Independent Shareholders of the Company (the "**Independent Shareholders**") in respect of the Capital Injection, details of which are set out in the letter from the Board (the "**Board Letter**") contained in the circular dated 9 August 2022 issued by the Company to the Shareholders (the "**Circular**"), of which this letter forms part. Terms used in this letter shall have the same meanings as defined in the Circular unless the context requires otherwise.

On 29 June 2022, the Company, HHGrace, the Wuxi Entity, China IC Fund, China IC Fund II and Hua Hong Wuxi entered into the Capital Injection Agreement pursuant to which it is conditionally agreed that the registered capital of Hua Hong Wuxi will increase from US$1,800 million to approximately US$2,536.85 million, where each of the Company, HHGrace, the Wuxi Entity and China IC Fund II will contribute approximately US$177.78 million, US$230.22 million, US$160 million and US$232 million in cash, respectively as capital injection into Hua Hong Wuxi. Upon completion of the Capital Injection, Hua Hong Wuxi will continue to be a non-wholly owned subsidiary of the Company, to be held as to approximately 22.2% by the Company and approximately 28.8% by HHGrace.

With reference to the Board Letter, the Capital Injection constitutes discloseable transaction and connected transaction of the Company under Chapter 14 and Chapter 14A of the Listing Rules and is subject to the reporting, announcement, circular and Independent Shareholders' approval requirements.

The Independent Board Committee comprising Mr. Chang Tso Tung, Stephen, Mr. Wong Kwai Huen, Albert and Mr. Ye Long Fei, being all of the independent non-executive Directors, has been formed to advise the Independent Shareholders on (i) whether the terms of the Capital Injection are on normal commercial terms and are fair and reasonable; (ii) whether the Capital Injection is in the interests of the Company and the Shareholders as a whole and is conducted in the ordinary and usual course of business of the Group; and (iii) how the Independent Shareholders should vote in respect of the resolution(s) to approve the Capital Injection at the EGM. We, Gram Capital Limited, have been appointed as the Independent Financial Adviser to advise the Independent Board Committee and the Independent Shareholders in this respect.

INDEPENDENCE

We were not aware of (i) any relationships or interests between Gram Capital and the Company; or (ii) any services provided by Gram Capital to the Company, during the past two years immediately preceding the Latest Practicable Date, or any other parties that could be reasonably regarded as hindrance to Gram Capital's independence to act as the Independent Financial Adviser to the Independent Board Committee and the Independent Shareholders.

BASIS OF OUR OPINION

In formulating our opinion to the Independent Board Committee and the Independent Shareholders, we have relied on the statements, information, opinions and representations contained or referred to in the Circular and the information and representations as provided to us by the Directors. We have assumed that all information and representations that have been provided by the Directors, for which they are solely and wholly responsible, are true and accurate at the time when they were made and continue to be so as at the Latest Practicable Date. We have also assumed that all statements of belief, opinion, expectation and intention made by the Directors in the Circular were reasonably made after due enquiry and careful consideration. We have no reason to suspect that any material facts or information have been withheld or to doubt the truth, accuracy and completeness of the information and facts contained in the Circular, or the reasonableness of the opinions expressed by the Company, its advisers and/or the Directors, which have been provided to us. Our opinion is based on the Directors' representation and confirmation that there is no undisclosed private agreement/arrangement or implied understanding with anyone concerning the Capital Injection Agreement. We consider that we have taken sufficient and necessary steps on which to form a reasonable basis and an informed view for our opinion in compliance with Rule 13.80 of the Listing Rules.

We have not made any independent evaluation or appraisal of the assets and liabilities of the Company and the Hua Hong Wuxi or their respective subsidiaries, and we have not been furnished with any such evaluation or appraisal, save as and except for the Valuation Report on Hua Hong Wuxi, which is set out in Appendix I to the Circular. The Valuation Report was prepared by China Enterprise Appraisals Co., Ltd. (i.e. the Valuer). Since we are not experts in the valuation of assets or business, we have relied solely upon the Valuation Report for the appraised value of the total shareholders' equity of Hua Hong Wuxi as at 30 June 2021.

The Circular, for which the Directors collectively and individually accept full responsibility for the information contained therein, includes particulars given in compliance with the Listing Rules for the purpose of giving information relating to the Group. The Directors, having made all reasonable enquiries, confirm that to the best of their knowledge and belief the information contained in the Circular is accurate and complete in all material respects and not misleading or deceptive, and there are no other matters the omission of which would make any statement herein or the Circular misleading. We, as the Independent Financial Adviser, take no responsibility for the contents of any part of the Circular, save and except for this letter of advice.

We consider that we have been provided with sufficient information to reach an informed view and to provide a reasonable basis for our opinion. We have not, however, conducted any independent in-depth investigation into the business and affairs of the Company, HHGrace, Hua Hong Wuxi, China IC Fund, China IC Fund II and the Wuxi Entity or their respective subsidiaries or associates (if applicable), nor have we considered the taxation implication on the Group or the Shareholders as a result of the Capital Injection. Our opinion is necessarily based on the financial, economic, market and other conditions in effect and the information made available to us as at the Latest Practicable Date. Shareholders should note that subsequent developments (including any material change in market and economic conditions) may affect and/or change our opinion and we have no obligation to update this opinion to take into account events occurring after the Latest Practicable Date or to update, revise or reaffirm our opinion. In addition, nothing contained in this letter should be construed as a recommendation to hold, sell or buy any Shares or any other securities of the Company.

Lastly, where information in this letter has been extracted from published or otherwise publicly available sources, it is the responsibility of Gram Capital to ensure that such information has been correctly extracted from the relevant sources.

PRINCIPAL FACTORS AND REASONS CONSIDERED

In arriving at our opinion in respect of the Capital Injection, we have taken into consideration the following principal factors and reasons:

Information on the Group

With reference to the Board Letter, the Company primarily focuses on embedded non-volatile memory, power discrete, analog & power management, logic & RF and other specialty technology manufacturing platforms.

Set out below is a summary of the consolidated financial information of the Group for the two years ended 31 December 2021 as extracted from the Company's annual report for the year ended 31 December 2021 (the "**2021 Annual Report**"):

	For the year ended 31 December 2021 *(audited)* *US$'000*	**For the year ended 31 December 2020** *(audited)* *US$'000*	**Change from 2020 to 2021** *%*
Revenue	1,630,754	961,279	69.64
Gross profit	451,598	234,793	92.34
Profit for the year attributable to owners of the parent	261,476	99,443	162.94

As depicted from the above table, the Group's revenue for the year ended 31 December 2021 ("**FY2021**") increased by approximately 69.64% as compared to that for the year ended 31 December 2020 ("**FY2020**"). With reference to the 2021 Annual Report, such increase was mainly due to the expansion of the Company's production capacity and strong market demand. The Group's gross profit for FY2021 also substantially increased by approximately 92.34% as compared to that for FY2020. With reference to the 2021 Annual Report, such increase was mainly due to improved average selling price, capacity utilization, and product mix, partially offset by increased depreciation expenses.

Profit for the year attributable to owners of the parent for FY2021 was approximately US$261.48 million, representing a significant increase of approximately 162.94% as compared to that for FY2020. With reference to the 2021 Annual Report, the aforesaid increase in profit for the year attributable to owners of the parent was mainly a combination effect of (i) increase in revenue and gross profit; and (ii) decrease in administrative expenses mainly due to the decrease in research and development expenses, and increased government grants for research and development.

Information on Hua Hong Wuxi

With reference to the Board Letter, Hua Hong Wuxi is a company incorporated in the PRC on 10 October 2017, and a non-wholly owned subsidiary of the Company. Hua Hong Wuxi is principally engaged in the design, research, manufacturing, testing, packaging and sale of integrated circuits fabricated on 12-inch (300mm) wafers. As at the Latest Practicable Date, Hua Hong Wuxi has one wholly-owned subsidiary, which was incorporated in September 2020 and is principally engaged in, among other things, property development.

As at the Latest Practicable Date, Hua Hong Wuxi was held as to (i) approximately 22.22% by the Company; approximately 28.78% by HHGrace (being a wholly-owned subsidiary of the Company); (iii) 29% by China IC Fund; and (iv) 20% by Wuxi Entity.

For Shareholder's easy reference, Hua Hong Wuxi's shareholding (i) as at the Latest Practicable Date; and (ii) upon completion of the Capital Injection are set out as follows:

Parties	As at the Latest Practicable Date		Upon completion of the Capital Injection	
	Current registered capital	Current equity interest	Total registered capital after the Capital Injection	Equity interest after the Capital Injection
	US$ million	*%*	*US$ million*	*%*
The Company	400.00	Approximately 22.22	563.74	Approximately 22.22
HH Grace	518.00	Approximately 28.78	730.05	Approximately 28.78
The Wuxi Entity	360.00	20.00	507.37	20.00
China IC Fund	522.00	29.00	522.00	Approximately 20.58
China IC Fund II	–	N/A	213.69	Approximately 8.42
Total	1,800.00	100.00	2,536.85	100

With reference to the Board Letter, set out below is the audited financial information of Hua Hong Wuxi for the three years ended 31 December 2021 prepared in accordance with generally accepted accounting principles in the PRC:

	For the year ended 31 December 2021	For the year ended 31 December 2020	For the year ended 31 December 2019
	RMB	*RMB*	*RMB*
Revenue	3,102,526,630.89	439,407,811.84	56,758,382.66
Loss before tax	(402,423,609.81)	(935,901,969.71)	(111,623,530.91)
Loss after tax	(402,423,609.81)	(935,901,969.71)	(111,623,530.91)

According to the above table, Hua Hong Wuxi's revenue surged for the three years ended 31 December 2021, in particular its revenue for the year ended 31 December 2021 represented an obvious increase in dollar amount as compared to that for the year ended 31 December 2020, which was mainly due to the expansion of Hua Hong Wuxi's production capacity in 2021 with the utilization rate maintained at over 100%. Hua Hong Wuxi also recorded gross profit for the year ended 31 December 2021 as compared to gross loss for the year ended 31 December 2020. Together with the substantial decrease in administrative cost of Hua Hong Wuxi for the year ended 31 December 2021, Hua Hong Wuxi also recorded a substantial decrease in loss before and after tax for the year ended 31 December 2021 as compared to that for the year ended 31 December 2020.

As at 31 December 2021, Hua Hong Wuxi recorded net asset value of approximately RMB10,593.9 million.

Information on China IC Fund and China IC Fund II

With reference to the Board Letter, China IC Fund mainly invests in the value chain of integrated circuit industry via equity investment, primarily in integrated circuit chip manufacturing as well as chip designing, packaging test and equipment and materials.

With reference to the Board Letter, China IC Fund II mainly invests in the value chain of integrated circuit industry via equity investment, primarily in integrated circuit chip manufacturing as well as chip designing, packaging test and equipment and materials.

With reference to the Board Letter, both China IC Fund and China IC Fund II are managed by Sino IC Capital. The voting right of Sino IC Capital (as a shareholder but not as the fund manager) at shareholders' meetings of China IC Fund and China IC Fund II is proportional to its shareholding interest in China IC Fund and China IC Fund II respectively.

As at the Latest Practicable Date, China IC Fund held 29% equity interests in Hua Hong Wuxi; while China IC Fund II did not own any shares in Hua Hong Wuxi.

Information on Wuxi Entity

With reference to the Board Letter, the Wuxi Entity is a professional investment company jointly established by municipal and district-level state-owned enterprises. It principally engages in equity investment in major semiconductor projects in Wuxi.

As at the Latest Practicable Date, Wuxi Entity held 20% equity interests in Hua Hong Wuxi.

Reasons for and benefits of the Capital Injection

Reasons for and benefits of the Capital Injection are set out under the section headed "5. REASONS FOR AND BENEFITS OF ENTERING INTO THE CAPITAL INJECTION AGREEMENT" of the Board Letter.

With reference to the Board Letter, the Board considers that during FY2020 and FY2021, Hua Hong Wuxi has fulfilled all the Company's internal business objectives in respect of technology development, production capacity and product delivery. In addition, the global semiconductor and chips shortage is expected to last beyond 2022, especially in the automobile sector, one of the sectors which the Company focuses on. Hua Hong Wuxi obtained the IATF16949 automotive quality certification in 2020 and has been introducing automotive products to its 12-inch fab since 2021. Coupled with the proposed Capital Injection, the technical expertise of Hua Hong Wuxi would enable the Company to further fulfill the demands from the automobile market. The Company expects to capture and capitalize on this attractive and significant market opportunity to ensure that Hua Hong Wuxi has sufficient funds and working capital to expand the production capacity of its 12-inch (300mm) wafers. As Hua

Hong Wuxi remains to be an indirect non-wholly owned subsidiary of the Company upon completion of the Capital Injection, the Company expects to generate favourable financial returns from such capital commitment in the medium-to-long term in the 12-inch wafer market.

With reference to the 2021 Annual Report, in light of the strong performance of Hua Hong Wuxi and the Company's "8-inch + 12-inch" corporate strategy, the Company will continue to expand the capacity of its 12-inch wafer production line in 2022. The Capital Injection falls in line with the Company's strategy to strengthen its market position and competitiveness in both 8-inch (200mm) and 12-inch (300mm) wafer fields.

With reference to the 2021 Annual Report, more diversified and advanced differentiated technology will continue to be the growth engine for the results of the Company. As the strained supply of semiconductor components in the world is expected to persist, the Company will fully implement its "8-inch + 12- inch" strategy to increase production capacity, further accelerating optimization of the existing 8-inch platform and capacity expansion of the 12-inch platform to meet market demand. The Company will unswervingly focus on promoting their differentiation strategy. The "IC+ Power Discrete" product strategy with support of the "8-inch +12-inch" production platforms will meet the needs of global market development. The Group will maintain its position as a wafer foundry enterprise with specialty technology, which is deeply trusted by its customers and highly worthy of investment.

As also stated in the 2021 Annual Report, the Company is accelerating its capacity expansion of Hua Hong Wuxi to address the global chip shortage and to continue the Group's outstanding growth in 2022.

As advised by the Directors, Hua Hong Wuxi will utilise the proceeds from the Capital Injection for the purpose of the further promote the expansion of production capacity of Hua Hong Wuxi. We consider the Capital Injection is in line with the Group's business development.

Furthermore, the Board considers that by strengthening the cooperation with China IC Fund II and the Wuxi Entity, Hua Hong Wuxi would also be able to benefit from certain policies of the Wuxi Municipal People's Government of the PRC in relation to the recruitment of talent, financing discounts and land subsidies, all of which would facilitate the development of its production lines. Such benefits are unlikely to be available, wholly or partially, if the Company decided to engage other investors for the Capital Injection.

Potential of integrated circuits industry

Based on our understanding, the integrated circuits industry became increasingly more important in worldwide supply chains, and the global foundry industry was in short-supply situation. With reference to the 2021 Annual Report, severe fluctuations in the global economy, repeated partial pandemics, bottlenecks in the supply chain, and overall growth in emerging markets, such as Automotive Electronics, Renewable Energy Generation, National Integrated

Bigdata Center System, Internet of Things, and Smart Healthcare, have led to a continuous increase in chip demand. Additional excellent chip design houses in China are starting to demonstrate their capability and have generated higher requirements for local semiconductor manufacturing capacity.

We noted that the government of the PRC issued various favourable government policies for integrated circuits industry in order to stimulate its development in recent years. In July 2020, the State Council of the PRC published the 《國務院關於印發新時期促進集成電路產業和軟件產業高質量發展若干政策的通知》(Notice of the State Council on Issuing Several Policies for Promoting the High-Quality Development of the Integrated Circuit Industry and Software Industry in the New Era), indicating that the integrated circuit industry and the software industry are the key forces leading a new round of technological revolution and industrial transformation. The State Council of the PRC has set a series of favourable policies for integrated circuits industry such as exemption of corporate income tax and import tariffs for integrated circuits manufacturers, guidance for the development of integrated circuits construction, intellectual property protection system for integrated circuits manufacturers, etc.

We also summarised the sales of integrated circuits in the PRC for the five years ended 31 December 2021, being the latest five full-year statistics published by China Semiconductor Industry Association, as follows:

	2017	**2018**	**2019**	**2020**	**2021**
	RMB billion	*RMB billion*	*RMB billion*	*RMB billion*	*RMB billion*
Sales of integrated circuits in the PRC	541.13	653.14	756.23	884.80	1,045.83

As shown in the above table, the sales of integrated circuits in the PRC reached RMB1,045.83 billion in 2021, representing an increase of approximately 18.20% as compared to that in 2020. From 2017 to 2021, the sales of integrated circuits in the PRC increased from approximately RMB541.13 billion to RMB 1,045.83 billion, representing a CAGR of approximately 17.91%.

Based on the above, we concur with the Directors that the prospects of integrated circuits industry are positive.

Having considered the above reasons for and benefits of the Capital Injection and the prospects of the integrated circuits industry as demonstrated above, we consider that the Capital Injection is conducted in the ordinary and usual course of business of the Group and in the interests in the Company and the Shareholders as a whole.

Major terms of the Capital Injection

Summarised below are the major terms for the Capital Injection, details of which are set out under the section headed "2. THE CAPITAL INJECTION AGREEMENT" of the Board Letter.

Date: 29 June 2022

Parties:
(i) the Company;
(ii) HHGrace, a wholly-owned subsidiary of the Company;
(iii) the Wuxi Entity;
(iv) China IC Fund;
(v) China IC Fund II; and
(vi) Hua Hong Wuxi, a non-wholly-owned subsidiary of the Company

Capital Injection

Each of the Company, HHGrace, the Wuxi Entity and China IC Fund II will contribute approximately US$177.78 million, US$230.22 million, US$160 million and US$232 million in cash, respectively as capital injection into Hua Hong Wuxi, on the basis that US$1 increase in registered capital corresponds to approximately US$1.0857 of Capital Injection.

The Company, HHGrace and the Wuxi Entity will exercise their rights under the JV Agreement to subscribe for the additional registered capital of Hua Hong Wuxi on a pro-rata basis. China IC Fund has surrendered such right and each of the Company, HHGrace and the Wuxi Entity has waived their rights of first refusal under the articles of association of Hua Hong Wuxi to subscribe for China IC Fund's relevant portion. As resolved unanimously by the board of Hua Hong Wuxi, the remaining portion of the Capital Injection will be taken up by China IC Fund II. Upon completion of the Capital Injection, the registered capital of Hua Hong Wuxi will be increased from US$1,800 million to approximately US$2,536.85 million, and Hua Hong Wuxi will continue to be a non-wholly owned subsidiary of the Company held as to the same proportions as before the Capital Injection by the Company and HHGrace, i.e. approximately 22.2% by the Company and approximately 28.8% by HHGrace.

Pursuant to the JV Agreement, any increase in the registered capital of the JV Company shall be unanimously approved by the board of directors of the Hua Hong Wuxi. Each shareholder of Hua Hong Wuxi has the right to subscribe for any additional increased registered capital of Hua Hong Wuxi in proportion to their then respective shareholdings in Hua Hong Wuxi. Such shareholder of Hua Hong Wuxi shall be deemed to surrender such right if it fails to notify Hua Hong Wuxi of its intention to subscribe within 30 days of receipt of such notice.

With reference to the Board Letter, the respective considerations of the Capital Injection were determined after arm's length negotiations among the parties, by making reference to, amongst others, (i) the valuation of the shareholders' equity in Hua Hong Wuxi as of 30 June

2021 which was set out in the Valuation Report prepared by the Valuer, (ii) the demand for working capital of Hua Hong Wuxi in the coming years in light of its future development plans, (iii) the prospect of the semiconductor industry in general, (iv) the respective current shareholdings of the parties in Hua Hong Wuxi; and (v) the reasons for and benefits of the Capital Injection. The Company and HHGrace will use their own funds for their respective portions of Capital Injection to Hua Hong Wuxi.

Valuation of Hua Hong Wuxi

To assess the fairness and reasonableness of the Consideration, we noted from the Valuation Report prepared by the Valuer that the appraised value of the entire shareholders' equity of Hua Hong Wuxi as at 30 June 2021 was RMB13,038.56 million (the "**Appraised Value**").

For our due diligence purpose, we reviewed and enquired into (i) the terms of engagement of the Valuer with the HHGrace, being the wholly-owned subsidiary of the Company; (ii) the Valuer's qualification in relation to the preparation of the Valuation Report; and (iii) the steps and due diligence measures taken by the Valuer for conducting the Valuation Report. From the mandate letter and other relevant information provided by the Valuer and based on our interview with them, we were satisfied with the terms of engagement of the Valuer as well as their qualification for preparation of the Valuation Report. The Valuer also confirmed that they are independent to the Group, HHGrace, the Wuxi Entity, China IC Fund, China IC Fund II and Hua Hong Wuxi.

The Valuer finally adopted income approach to conclude the Appraised Value. As confirmed by the Valuer, asset-based approach, income approach and market approach are the commonly adopted approaches for valuation of companies. We consider the Valuer's adoption of income approach to conclude the Appraised Value is reasonable after taking into account the following factors:

(i) Hua Hong Wuxi was incorporated on 10 October 2017. It first recorded revenue from principal business in 2019. Hua Hong Wuxi also experienced a significant increase in its business operation (i.e. revenue from Hua Hong Wuxi was approximately RMB56.76 million in 2019, RMB439.41 million in 2020 and RMB3,102.53 million in 2021). We consider not to adopt market approach to conclude the Appraised Value to be reasonable.

(ii) the market value of the core intangible assets such as process routing (工藝路線), enterprise management level, technical talents and self-created goodwill cannot be fully reflected by asset-based approach and therefore the asset-based approach was not adopted to conclude the Appraised Value.

We also noted that the valuation benchmark date was 30 June 2021, being approximately one-year earlier than the date of Capital Injection Agreement. Having considered the following factors:

(i) as the income approach was adopted to conclude the Appraised Value, Hua Hong Wuxi's performance for the period from 1 July 2021 to the date of Capital Injection Agreement was considered in the Appraised Value as at 30 June 2021;

(ii) For our due diligence purpose, we obtained a simulated calculation prepared by the Company based on the 2021 actual financial performance of Hua Hong Wuxi with certain adjustments, which was reviewed by the Valuer. According to the results, the difference between the simulated value of Hua Hong Wuxi as at 30 June 2021 and the Appraised Value was immaterial; and

(iii) according to Article 11 of the Principles for Asset Valuation – Valuation Report issued by the China Appraisal Society, "Valuation report shall clearly specify the valid period for using the report. Generally, the valuation report shall only be used where the period between the valuation date and the date on which the economic act executed is not more than one year",

we do not doubt the meaningfulness of Appraised Value with valuation reference date at 30 June 2021, which is approximate one-year earlier than the date of Capital Injection Agreement.

As the Valuer adopted income approach to conclude the Appraised Value, in such cases, it is stipulated under Rule 14.62 of the Listing Rules that the Company is required to obtain: (i) a letter from the its auditors or reporting accountants confirming that they have reviewed the accounting policies and calculations for the forecast and containing their report; and (ii) a report from the its financial advisers confirming that they are satisfied that the forecast has been made by the directors after due and careful enquiry. If no financial advisers have been appointed in connection with the transaction, the Company must provide a letter from the board of directors confirming they have made the forecast after due and careful enquiry.

We consider that the above stipulation of the Listing Rules could safeguard the interest of the Shareholders. We noted that (i) the Company's auditor confirmed that in their opinion, so far as the arithmetical accuracy of the calculations of the Forecast (as defined in appendix II to the Circular) is concerned, the Forecast (as defined in appendix II to the Circular) has been properly compiled in all material respects in accordance with the Assumptions (as defined in appendix II to the Circular) adopted by the Directors; and (ii) the Board confirmed that the valuations prepared by the Valuer have been made after due and careful enquiries.

We further discussed with the Valuer in respect of the Valuation Report to understand the major evaluation parameters/assumptions (including forecast period, income, discount rate, etc.) and the Valuer's work-done in arriving at the valuation. We understood that the Appraised

Value was arrived by first estimating the value of Hua Hong Wuxi's operating assets by adopting the income approach and then adding the long-term equity investment of Hua Hong Wuxi and adjusting non-operating or surplus assets/liabilities and interest-bearing debt on the valuation benchmark date.

We also discussed the key assumptions and parameters under the Valuation Report.

A. Determination of forecast period

As the income of the enterprise for a short period can be reasonably forecasted and the revenue forecast for a long period is relatively less reasonable, the cash flow of the enterprise is forecasted customarily using the phased method that divides the future cash flow of the enterprise into those occurring during and after the specific forecast period up to the year in which production and operation of the enterprise are stable. As determined by the valued entity, the forecast period of the valued entity is 5 years up to 2026.

In addition, as the operation of the valued entity is normal at the valuation base date, no limits are set to the useful lives of core assets affecting the going concern of the enterprise, or to the duration of the enterprise or the term of ownership of investors, or such limits may be removed and they may be used perpetually by way of continuation. Therefore, the valuation assumes that the valued entity remains a going concern after the valuation base date, with an infinite benefit period.

The Valuer use a two-stage forecast period. The 1st stage is from 1 July 2021 to 31 December 2026. The 2nd stage is an infinite period from 1 January 2027. Based on our research, the two-stage of forecast/benefit period was commonly adopted in the valuation of enterprise value by using income approach.

B. Free cash flow

With reference to the Valuation Report, free cash flow was adopted under the income approach. The valuation is based on anticipated operating results of Hua Hong Wuxi. The estimates on future operation and revenue of Hua Hong Wuxi are conducted through analysis over revenue (based on production capacity, historical sales amount and quantity of relevant products), costs, growth movements, etc.. As it is anticipated that the production capacity of Hua Hong Wuxi will reach full capacity in 2024, therefore there is no growth in revenue of Hua Hong Wuxi from 2025, 2026, 2027 and afterwards.

We noted that the forecasted revenue was determined based on the anticipated production capacity of Hua Hong Wuxi. It is anticipated that the production capacity of Hua Hong Wuxi will reach full capacity in 2024. The expected selling price is made with reference to, among other things, historical unit price of the same products. We also obtained detailed production cost, depreciation and amortisation, capital expenditure, etc..

As mentioned above, we noted that the Board issued the letter confirming that the valuations prepared by the Valuer have been made after due and careful enquires. Having considered (i) that the aforesaid Board's confirmation; and (ii) the Valuer's qualification and experience, we do not doubt the fairness and reasonableness of expected free cash flow of Hua Hong Wuxi.

C. Discount rate

With reference to the Valuation Report, the weighted average cost of capital of 11.90% is adopted as the discount rate for free cashflow.

We noted that the Valuer used the Capital Asset Pricing Model ("**CAPM**") to assess the cost of equity for Hua Hong Wuxi. In arriving at the cost of equity, the Valuer took into account a number of factors including (i) risk free rate; (ii) Beta coefficient; (iii) market risk premium; and (iv) specific corporate risk adjustment coefficient.

For our due diligence purposes, we performed the following analysis:

- We understood that the CAPM technique is widely accepted for the purpose of estimating required rate of return on equity.

- The Valuer adopted 3.0778% as risk free rate, which was determined with reference to 10-year yield of PRC sovereign debt. We noted from the website of China Banking and Insurance Regulatory Commission that 10-year yield of PRC sovereign debt was approximately 3.0778% as at 30 June 2021. Therefore, we consider the risk-free rate of 3.0778% adopted by the Valuer to be fair and reasonable.

- Furthermore, we noted that the Valuer calculated re-levered beta coefficient based on comparable companies with certain criteria.

- According to the Valuation Report, the Valuer adopted 7.23% as market risk premium.

In arriving at the cost of debt, the Valuer determined cost of debt based on the actual average borrowing cost of Hua Hong Wuxi as at the valuation benchmark date.

Based on the above, we consider the discount rate for free cashflow to be fair and reasonable.

D. Long-term equity investments of Hua Hong Wuxi

Enterprises being controlled by or invested by Hua Hong Wuxi were classified as long-term equity investments of Hua Hong Wuxi in the valuation.

As at the valuation benchmark date, Hua Hong Wuxi has one wholly-owned subsidiary, which is principally engaged in, among other things, property development. The valuation of long-term equity investments of Hua Hong Wuxi was approximately RMB33.4 million as at 30 June 2021 as appraised by the Valuer. As (i) the majority assets of the subsidiary was monetary fund and two land use rights (development not yet commenced); and (ii) entire liabilities was loan granted by Hua Hong Wuxi (including relevant interests), we consider the valuation results of the subsidiary as at the valuation benchmark date, being in line with its net asset value, to be justifiable.

During our discussion with the Valuer, we did not identify any major factor which caused us to doubt the fairness and reasonableness of the methodology, principal bases, assumptions and parameters adopted for the Valuation Report.

Based on the above and information/documents (e.g. explanation to key factors, calculations, etc.) in respect of the Appraised Value provided to us by the Valuer/Company and having considered the Valuer's qualification and experience, we have not identified any major factors which caused us to doubt the fairness and reasonableness of the principal bases and assumptions adopted for the valuation (including forecast period and value of the surplus or non-operating assets (liabilities)). In addition, as also confirmed by the Valuer, (i) the demand for working capital of Hua Hong Wuxi in the coming years in light of its future development plans, (ii) the prospect of the semiconductor industry in general, (iii) that the Company will continue to expand the capacity of its 12-inch wafer production line in 2022 as mentioned in the section headed "REASONS FOR AND BENEFITS OF THE CAPITAL INJECTION AGREEMENT" were considered in the process of the valuation.

Having also considered (i) our due diligence work on the Valuer in respect of the Valuation Report; and (ii) the Rule 14.62 of Listing Rules requirement, in particular, the Board confirmed that the valuations prepared by the Valuer have been made after due and careful enquires, we consider that principal bases and assumptions adopted for the Appraised Value to be reasonable.

As the basis of US$1 increase in registered capital corresponds to approximately US$1.0857 of Capital Injection (i) equals to the Appraised Value (i.e. approximately RMB13,038.56 million) over Hua Hong Wuxi's registered capital of US$1,800 million as at the Latest Practicable Date; and (ii) will be applied to all subscribers, including an independent third party, we are of the view that the basis of US$1 increase in registered capital corresponds to approximately US$1.0857 of Capital Injection is fair and reasonable.

The amounts to be contributed by the Company, HHGrace, the Wuxi Entity and China IC Fund II (i.e. approximately US$177.78 million, US$230.22 million, US$160 million and US$232 million) represented "US$1 increase in registered capital corresponds to US$1.0857" multiply by "Additional registered capital contributed by the aforesaid parties". The percentage of additional registered capital contributed by each of the aforesaid parties to total additional registered capital is in proportion to their (or another entity managed by same manager) shareholdings in Hua Hong Wuxi.

Payment terms and completion

Within 30 business days of the receipt of the notification stated above, each of the parties involved in the Capital Injection shall subscribe for the increased share capital of Hua Hong Wuxi in cash in the RMB equivalent of their respective portions under the Capital Injection Agreement, save that the Company shall make its contribution in RMB by way of reinvestment using dividends payable by HHGrace to the Company (and in US$ in cash to extent that such dividends are insufficient to cover the Company's portion of the Capital Injection). The Capital Injection shall be completed when the Capital Injection has been paid in full.

Corporate Governance of Hua Hong Wuxi after the Capital Injection

With reference to the Board Letter, China IC Fund II has entered into a supplemental JV Agreement with Hua Hong Wuxi, the Company, HHGrace, the Wuxi Entity and China IC Fund, pursuant to which China IC Fund II enjoy the same existing shareholder's rights upon completion of the Capital Injection. China IC Fund currently has the right to appoint two (out of seven) directors to the board of Hua Hong Wuxi. Upon completion of the Capital Injection, each of China IC Fund and China IC Fund II will have the right to appoint one director to the board, while the remaining seats will continue to be filled by representatives of the Company, HHGrace, the Wuxi Entity and employees of Hua Hong Wuxi in the same number and ratio as before the Capital Injection. China IC Fund, China IC Fund II and the Wuxi Entity, being the minority shareholders of Hua Hong Wuxi, will have the right to make suggestions and to discuss with Hua Hong Wuxi, the Company and/or HHGrace in relation to the operation and management of the Hua Hong Wuxi and its subsidiaries.

Further, the articles of association of Hua Hong Wuxi will also be amended as appropriate to reflect the terms agreed under the Capital Injection Agreement. However, given both (i) the respective shareholdings of the Company, HHGrace and the Wuxi Entity in Hua Hong Wuxi; and (ii) the number and ratio of board representatives of the Company and HHGrace in Hua Hong Wuxi will remain unchanged upon completion of the Capital Injection, matters in relation to corporate governance of Hua Hong Wuxi, including the rights of the Company and HHGrace under the JV Agreement, will not be affected by the Capital Injection. We concur with the Directors in this regard.

Having reviewed and considered the terms of the Capital Injection Agreement in particular the key terms as listed above (including the basis of US$1 increase in registered capital corresponds to approximately US$1.0857 of Capital Injection being fair and reasonable;

and no abnormal term observed) and that the terms of the Capital Injection Agreement will be applied to all subscribers (including an independent third party), we are of the view that the terms of the Capital Injection are on normal commercial terms and are fair and reasonable.

RECOMMENDATION

Having taken into consideration the factors and reasons as stated above, we are of the opinion that (i) the terms of the Capital Injection are on normal commercial terms and are fair and reasonable; and (ii) the Capital Injection is conducted in the ordinary and usual course of business of the Group and is in the interests of the Company and the Shareholders as a whole. Accordingly, we recommend the Independent Board Committee to advise the Independent Shareholders to vote in favour of the resolution(s) to be proposed at the EGM to approve the Capital Injection and we recommend the Independent Shareholders to vote in favour of the resolution(s) in this regard.

Yours faithfully,
For and on behalf of
Gram Capital Limited
Graham Lam
Managing Director

Note: Mr. Graham Lam is a licensed person registered with the Securities and Futures Commission and a responsible officer of Gram Capital Limited to carry out Type 6 (advising on corporate finance) regulated activity under the SFO. He has over 25 years of experience in investment banking industry.

** for identification purpose only*

The Asset Valuation Report on the Value of the Entire Shareholders' Equity in Hua Hong Semiconductor (Wuxi) Limited Involved in the Proposed Capital Increase of Hua Hong Semiconductor (Wuxi) Limited

THE VALUE OF THE ENTIRE SHAREHOLDERS' EQUITY IN HUA HONG SEMICONDUCTOR (WUXI) LIMITED INVOLVED IN THE PROPOSED CAPITAL INCREASE OF HUA HONG SEMICONDUCTOR (WUXI) LIMITED

THE ASSET VALUATION REPORT

To Shanghai Huahong Grace Semiconductor Manufacturing Corporation,

China Enterprise Appraisals Co., Ltd. has been engaged by the Company to assess the market value of the entire shareholders' equity in Hua Hong Semiconductor (Wuxi) Limited at the valuation benchmark date, using three approaches, in accordance with laws, administrative regulations and the asset valuation standards, and the principles of independence, objectivity and impartiality, and required valuation procedures. The asset valuation is hereby reported as follows:

I. CONSIGNOR, VALUED ENTITY AND OTHER ASSET VALUATION REPORT USERS SPECIFIED IN THE ASSET VALUATION ENGAGEMENT CONTRACT

For the valuation, the consignor is Shanghai Huahong Grace Semiconductor Manufacturing Corporation, and the valued entity is Hua Hong Semiconductor (Wuxi) Limited. Other asset valuation report users specified in the asset valuation engagement contract are other shareholders of the valued entity and other report users as specified by laws and regulations.

(I) Profile of the consignor

Company name: Shanghai Huahong Grace Semiconductor Manufacturing Corporation

Legal residence: No. 1399 Zuchongzhi Road, China (Shanghai) Pilot Free Trade Zone

Legal representative: Suxin Zhang

Registered capital: RMB7,828,577,759

Date of establishment: 2013-01-24

Duration: from 2013-01-24 to 2053-01-23

Nature: Limited liability company (sole proprietorship from Taiwan, Hong Kong and Macau)

Main scope of business: the design, development, manufacturing, testing and packaging related to IC products, sales of IC products and relevant technical support, and sales of self-produced products. (Businesses subject to approval by law shall be conducted with approval of relevant authorities)

(II) Profile of the valued entity

1. Company profile

Company name: Hua Hong Semiconductor (Wuxi) Limited (hereinafter referred to as Hua Hong Wuxi)

Registered address: No. 30, Xinzhou Road, Xinwu District, Wuxi

Legal representative: Suxin Zhang

Registered capital: US$1,800 million

Type: Limited liability company (with Hong Kong, Macau, Taiwan investment, non-wholly owned)

Scope of business: the design, development, manufacturing, testing, packaging and sales of IC products, and technical services. (Businesses subject to approval by law shall be conducted with approval of relevant authorities)

Date of establishment: 2017-10-10

Duration: from 2017-10-10 to 2068-02-13

2. Changes of shareholders, shareholding percentages and equity interests of the company

(1) Establishment of the company

Hua Hong Semiconductor (Wuxi) Limited was established on 10 October 2017, with Shanghai Huahong Grace Semiconductor Manufacturing Corporation as its promoter.

S/N	Name of Shareholder	Amount of Capital Contribution *(RMB'0,000)*	Shareholding Percentage *(%)*	Form of Contribution
1	Shanghai Huahong Grace Semiconductor Manufacturing Corporation	668.00	100	Currency

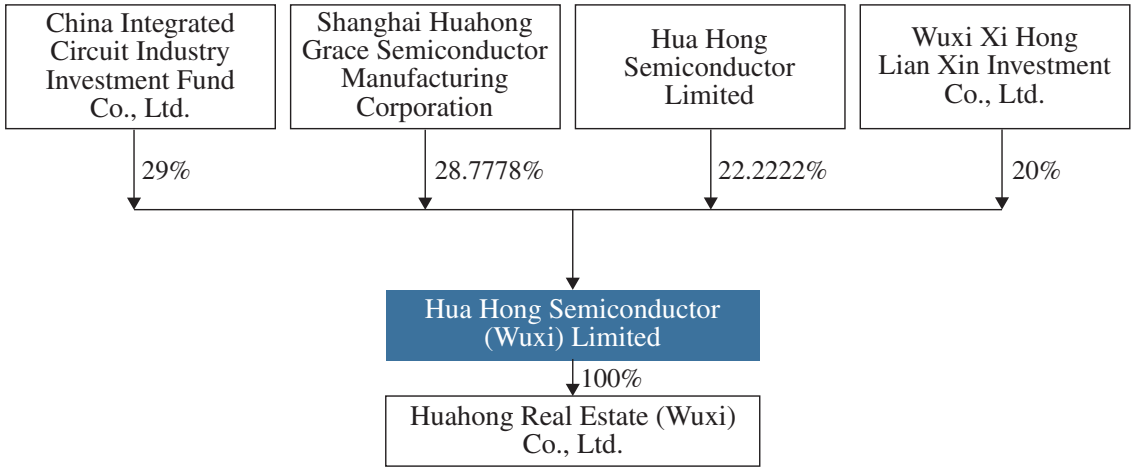
(2) Change of shareholder

On 14 February 2018, according to the Articles of Association and the resolution of the general meeting of Hua Hong Wuxi, it became a Sino-foreign joint venture (with limited liability) jointly invested and established by Shanghai Huahong Grace Semiconductor Manufacturing Corporation, Hua Hong Semiconductor Limited (a foreign company), China Integrated Circuit Industry Investment Fund Co., Ltd. and Wuxi Xi Hong Lian Xin Investment Co., Ltd., with a concurrent increase of its registered capital to US$1.8 billion.

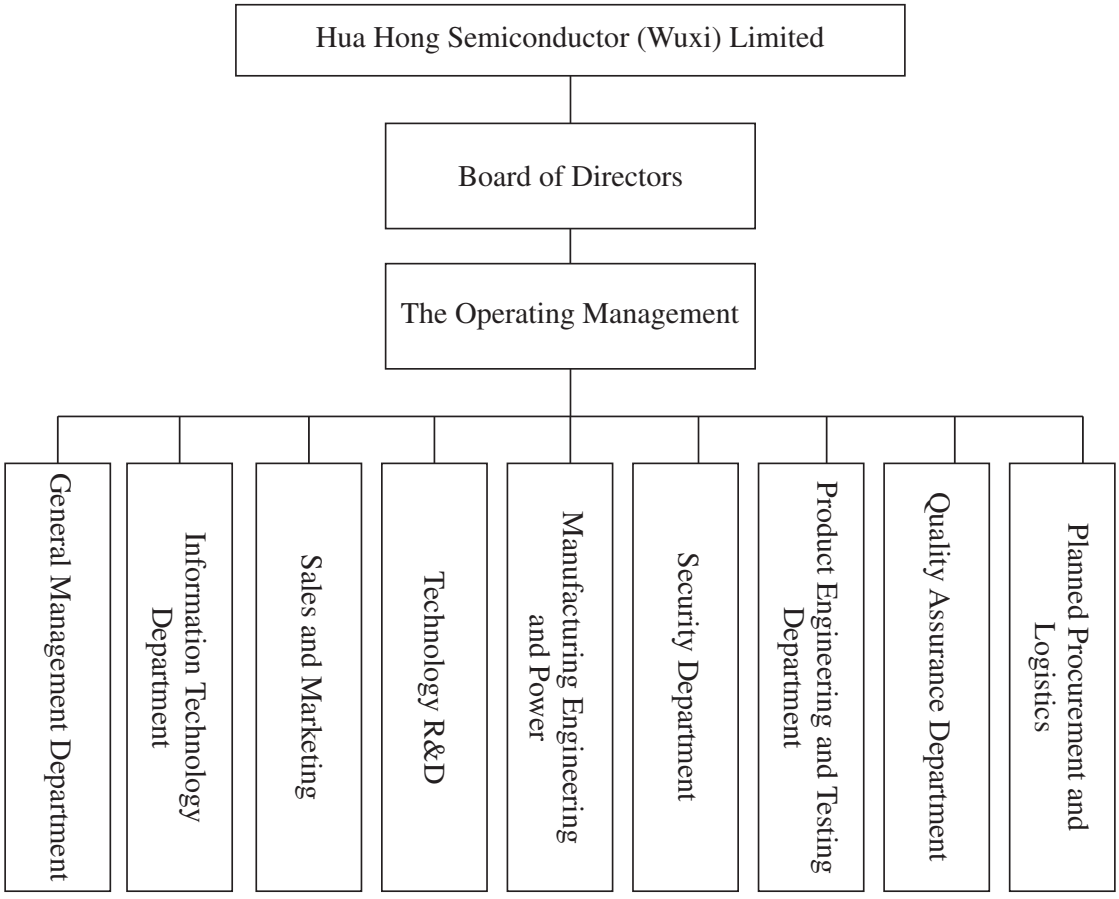
S/N	Name of Shareholder	Amount of Capital Contribution *(US$'0,000)*	Shareholding Percentage *(%)*	Form of Contribution
1	China Integrated Circuit Industry Investment Fund Co., Ltd.	52,200.00	29.0000	Currency
2	Shanghai Huahong Grace Semiconductor Manufacturing Corporation	51,800.00	28.7778	Currency
3	Hua Hong Semiconductor Limited	40,000.00	22.2222	Currency
4	Wuxi Xi Hong Lian Xin Investment Co., Ltd.	36,000.00	20.0000	Currency
	Total	180,000.00	100.00	

3. Property rights and operation management structures of the company

Below diagram illustrates the property rights structure of Hua Hong Semiconductor (Wuxi) Limited as of the valuation benchmark date:



Below diagram illustrates the organizational structure of Hua Hong Semiconductor (Wuxi) Limited as of the valuation benchmark date:



4. Assets, financial and operating conditions for the period and two complete years

The consolidated financial condition of the valued entity for the period and two complete years is as follows:

Unit: RMB'0,000

Items	31 December 2019	31 December 2020	30 June 2021
Current assets	665,508.74	415,403.39	432,739.99
Net fixed assets	426,881.25	732,252.99	959,223.37
Construction in progress	259,038.28	537,454.56	444,701.72
Right-of-use assets	570.19	425.35	114.98
Intangible assets	27,771.91	32,428.29	32,688.29
Other non-current assets	2,959.48	3,734.65	6,686.22
Total assets	1,382,729.85	1,721,699.23	1,876,154.57
Current liabilities	190,484.57	295,978.91	413,947.62
Non-current liabilities	96.18	326,245.00	387,606.00
Total liabilities	190,580.74	622,223.91	801,553.62
Total ownership interests	1,192,149.11	1,099,475.32	1,074,600.96

The unconsolidated financial condition of the valued entity for the period and two complete years is as follows:

Unit: RMB'0,000

Items	31 December 2019	31 December 2020	30 June 2021
Current assets	665,508.74	335,399.49	352,727.68
Long-term receivables	0.00	77,141.17	78,296.17
Long-term equity investments	0.00	3,000.00	3,000.00
Net fixed assets	426,881.25	732,252.99	959,223.37
Construction in progress	259,038.28	537,454.56	444,701.72
Right-of-use assets	570.19	425.35	114.98
Intangible assets	27,771.91	32,428.29	32,688.29
Other non-current assets	2,959.48	3,734.65	6,686.22
Total assets	1,382,729.85	1,721,836.49	1,877,438.42
Current liabilities	190,484.57	295,974.31	413,947.62
Non-current liabilities	96.18	326,245.00	387,606.00
Total liabilities	190,580.74	622,219.31	801,553.62
Ownership interests attributable to the parent company	1,192,149.11	1,099,617.19	1,075,884.81
Minority interests	0.00	0.00	0.00
Total ownership interests	1,192,149.11	1,099,617.19	1,075,884.81

The consolidated operating conditions of the valued entity for the period and two complete years are as follows:

Unit: RMB'0,000

Items	2019	2020	January-June 2021
I. Operating revenue	5,675.84	43,940.78	89,966.43
Less: Operating costs	5,990.31	46,782.85	92,783.65
Taxes and surcharges	718.85	1,091.72	1,480.83
Selling expenses	40.21	364.14	883.82
Administrative expenses	30,163.12	64,177.94	12,403.80
R&D expenses	11,945.81	64,109.23	26,130.13
Financial expenses	-10,757.34	-18,039.53	-3,767.25
Of which: Interest expenses	20.70	1,173.60	2,891.14
Interest income	9,839.41	4,498.19	1,967.50

Items	2019	2020	January-June 2021
Add: Other gains	4,919.73	19,881.70	13,954.45
Gain from investment ("-" represents loss)	16,676.81	6,349.46	0.00
Of which: Gain from investment in associates and joint ventures	0.00	0.00	0.00
Gain from net exposure hedges ("-" represents loss)	0.00	0.00	0.00
Profit or loss arising from change in fair value ("-" represents loss)	-189.90	-2,608.52	0.00
Asset impairment loss ("-" represents loss)	-147.23	-2,674.02	895.65
Credit impairment loss ("-" represents loss)	0.00	0.00	0.00
Gain on disposal of assets ("-" represents loss)	0.00	0.00	0.00
II. Operating profit ("-" represents loss)	-11,165.70	-93,596.94	-25,098.46
Add: Non-operating income	3.35	6.74	12.70
Less: Non-operating expenses	0.00	0.00	57.67
III. Total profit ("-" represents total loss)	-11,162.35	-93,590.20	-25,143.43
Less: Income tax expenses	0.00	0.00	0.00
IV. Net profit ("-" represents net loss)	-11,162.35	-93,590.20	-25,143.43

The unconsolidated operating conditions of the valued entity for the period and two complete years are as follows:

Unit: RMB'0,000

Items		2019	2020	January-June 2021
I.	**Operating revenue**	5,675.84	43,940.78	89,966.43
	Less: Operating costs	5,990.31	46,782.85	92,783.65
	Taxes and surcharges	718.85	1,087.12	1,477.36
	Selling expenses	40.21	364.14	883.82
	Administrative expenses	30,163.12	64,177.94	12,403.80
	R&D expenses	11,945.81	64,109.23	26,130.13
	Financial expenses	-10,757.34	-18,176.80	-4,905.76
	Of which: Interest expenses	20.70	1,173.60	2,891.14
	Interest income	9,839.41	4,635.45	3,106.00
	Add: Other gains	4,919.73	19,881.70	13,954.45
	Gain from investment ("-" represents loss)	16,676.81	6,349.46	0.00
	Of which: Gain from investment in associates and joint ventures	0.00	0.00	0.00
	Gain from net exposure hedges ("-" represents loss)	0.00	0.00	0.00
	Profit or loss arising from change in fair value ("-" represents loss)	-189.90	-2,608.52	0.00
	Asset impairment loss ("-" represents loss)	-147.23	-2,674.02	895.65
	Credit impairment loss ("-" represents loss)	0.00	0.00	0.00
	Gain on disposal of assets ("-" represents loss)	0.00	0.00	0.00
II.	**Operating profit ("-" represents loss)**	-11,165.70	-93,455.07	-23,956.48
	Add: Non-operating income	3.35	6.74	12.70
	Less: Non-operating expenses	0.00	0.00	57.67
III.	**Total profit ("-" represents total loss)**	-11,162.35	-93,448.33	-24,001.44
	Less: Income tax expenses	0.00	0.00	0.00

Items	2019	2020	January-June 2021
IV. Net profit ("-" represents net loss)	-11,162.35	-93,448.33	-24,001.44
Profit and loss of minority shareholders	0.00	0.00	0.00
V. Net profits attributable to owners of parent company	-11,162.35	-93,448.33	-24,001.44

The accounting statements of the valued entity as at the valuation benchmark date and for 2020 and 2019 have been audited by Ernst & Young Hua Ming LLP, which has issued unqualified opinion.

5. Relationship between the consignor and the valued entity

The consignor is a shareholder of the valued entity, who holds a 28.7778% equity interest in the valued entity.

(III) Other asset valuation report users specified in the asset valuation engagement contract

This asset valuation report is only for the use of the consignor and other shareholders of the valued entity and the users of the asset valuation report specified by national laws and regulations, and shall not be used or relied on by any other third party.

II. PURPOSE OF VALUATION

Hua Hong Semiconductor (Wuxi) Limited intends to make a capital increase under a non-public agreement. For this purpose, it is necessary to appraise the value of entire shareholders' equity of Hua Hong Semiconductor (Wuxi) Limited involved in the economic behavior at the valuation benchmark date, and provide a professional opinion on value for the economic behavior.

Hua Hong Semiconductor (Wuxi) Limited held a board meeting on the matter and issued the Resolution of the Board of Directors of Hua Hong Semiconductor (Wuxi) Limited (Xi Hua Hong Board [2021] No. 13).

With regard to the matter, Shanghai Huahong (Group) Co., Ltd. held a management meeting of the group and issued the Minutes of Management Meeting (Hu Huahong Meeting [2021] No. 11), and issued the Request for Instructions on Capital Increase of Hua Hong Semiconductor (Wuxi) Limited under Non-public Agreement (Hu Huahong [2021] No. 65) to the Shanghai State-owned Assets Supervision and Administration Commission.

III. OBJECT AND SCOPE OF VALUATION

(I) Valuation object

The valuation object is the value of the entire shareholders' equity in Hua Hong Semiconductor (Wuxi) Limited.

(II) Scope of valuation

The scope of valuation covers all assets and liabilities of the valued entity. On the valuation benchmark date, the assets covered by the scope of valuation include current assets, long-term receivables, long-term equity investments, fixed assets, construction in progress, right-of-use assets, intangible assets, other non-current assets, etc., while liabilities covered by the scope of valuation include current liabilities and long-term liabilities. The carrying amounts of total assets, total liabilities and net assets are RMB18,774.3843 million, RMB8,015.5362 million and RMB10,758.8481 million respectively.

The valuation object and scope in the engagement are consistent with those involved in economic behaviors. On the valuation benchmark date, the carrying amounts of the assets and liabilities covered by the scope of valuation were audited by Ernst & Young Hua Ming LLP, which issued unqualified opinion.

(III) Main assets within the scope of valuation are as follows:

Main assets declared by the company to be included in the scope of valuation include inventories, housing and building assets, equipment assets, long-term receivables, construction in progress, long-term equity investments, intangible assets, etc. Types and characteristics of main assets are as follows:

1. Inventories

Inventories included in the scope of valuation are raw materials, finished products and goods in process. The raw materials are mainly production-related raw materials and auxiliary materials; the finished products are mainly products that have been completed but not yet delivered; goods in process are mainly raw materials and products in processing. The inventories of the valued entity are mainly kept in its fab.

2. Housing and building assets

There are 20 buildings (structures) within the scope of valuation in total, the specific details of which are as follows:

S/N	Real Estate Ownership Certificate No.	Name of Building	Purposes	Location	Structure	Gross Floor Area *(sq.m.)*	Original Carrying Amount *(RMB)*	Net Carrying Amount *(RMB)*
1	Su (2020) Wuxi City Real Estate Ownership Certificate No. 0178538	C01 Civil engineering-Production plant 1	Industrial land/industry, transportation, storage	No. 28, 30, Xinzhou Road, No. 27, 29, Xixing Road	Reinforced concrete structure	136,023.58	657,269,457.44	615,640,781.63
2	Su (2020) Wuxi City Real Estate Ownership Certificate No. 0178538	C01 Civil engineering-Power plant and waste water treatment station 1	Industrial land/industry, transportation, storage	No. 28, 30, Xinzhou Road, No. 27, 29, Xixing Road	Reinforced concrete structure	32,162.39	157,194,273.61	147,238,636.29
3	Su (2020) Wuxi City Real Estate Ownership Certificate No. 0178538	C01 Civil engineering-Engineers building 1	Industrial land/industry, transportation, storage	No. 28, 30, Xinzhou Road, No. 27, 29, Xixing Road	Reinforced concrete structure	19,999.19	96,769,544.91	90,640,807.12
4	Su (2020) Wuxi City Real Estate Ownership Certificate No. 0178538	C01 Civil engineering-Hazardous product warehouse	Industrial land/industry, transportation, storage	No. 28, 30, Xinzhou Road, No. 27, 29, Xixing Road	Reinforced concrete structure	709.68	3,365,392.33	3,152,250.82
5	Su (2020) Wuxi City Real Estate Ownership Certificate No. 0178538	C01 Civil engineering-Chemicals warehouse	Industrial land/industry, transportation, storage	No. 28, 30, Xinzhou Road, No. 27, 29, Xixing Road	Reinforced concrete structure	6,027.82	30,161,431.47	28,251,207.47
6	Su (2020) Wuxi City Real Estate Ownership Certificate No. 0178538	C01 Civil engineering-Solid waste facility 1	Industrial land/industry, transportation, storage	No. 28, 30, Xinzhou Road, No. 27, 29, Xixing Road	Reinforced concrete structure	705.17	3,411,008.99	3,194,978.42

S/N	Real Estate Ownership Certificate No.	Name of Building	Purposes	Location	Structure	Gross Floor Area *(sq.m.)*	Original Carrying Amount *(RMB)*	Net Carrying Amount *(RMB)*
7	Su (2020) Wuxi City Real Estate Ownership Certificate No. 0178538	C01 Civil engineering-Gate house 1	Industrial land/industry, transportation, storage	No. 28, 30, Xinzhou Road, No. 27, 29, Xixing Road	Reinforced concrete structure	104.33	498,549.42	466,974.62
8	Su (2020) Wuxi City Real Estate Ownership Certificate No. 0178538	C01 Civil engineering-Gate house 2	Industrial land/industry, transportation, storage	No. 28, 30, Xinzhou Road, No. 27, 29, Xixing Road	Reinforced concrete structure	70.34	336,857.72	315,523.39
9	Su (2020) Wuxi City Real Estate Ownership Certificate No. 0178538	C01 Civil engineering-Silane station	Industrial land/industry, transportation, storage	No. 28, 30, Xinzhou Road, No. 27, 29, Xixing Road	Reinforced concrete structure	522.43	2,621,561.49	2,455,529.27
10	Su (2020) Wuxi City Real Estate Ownership Certificate No. 0178538	C01 Civil engineering-220KV transformer station	Industrial land/industry, transportation, storage	No. 28, 30, Xinzhou Road, No. 27, 29, Xixing Road	Reinforced concrete structure	7,969.20	38,987,005.65	36,517,828.61
11	Su (2020) Wuxi City Real Estate Ownership Certificate No. 0178538	C01 Civil engineering-Corridor 1	Industrial land/industry, transportation, storage	No. 28, 30, Xinzhou Road, No. 27, 29, Xixing Road	Reinforced concrete structure	Incorporated into engineers building	397,859.59	372,661.81
12	Su (2020) Wuxi City Real Estate Ownership Certificate No. 0178538	C01 Civil engineering-Corridor 2	Industrial land/industry, transportation, storage	No. 28, 30, Xinzhou Road, No. 27, 29, Xixing Road	Reinforced concrete structure	Incorporated into engineers building	190,404.23	178,345.30
13	Su (2020) Wuxi City Real Estate Ownership Certificate No. 0178538	C01 Civil engineering-Corridor 3	Industrial land/industry, transportation, storage	No. 28, 30, Xinzhou Road, No. 27, 29, Xixing Road	Reinforced concrete structure	Incorporated into engineers building	188,738.32	176,784.88
14	Su (2020) Wuxi City Real Estate Ownership Certificate No. 0178538	C01 Civil engineering-Sewage monitoring station	Industrial land/industry, transportation, storage	No. 28, 30, Xinzhou Road, No. 27, 29, Xixing Road	Reinforced concrete structure	33.54	156,791.95	146,861.79

S/N	Real Estate Ownership Certificate No.	Name of Building	Purposes	Location	Structure	Gross Floor Area *(sq.m.)*	Original Carrying Amount *(RMB)*	Net Carrying Amount *(RMB)*
15	Su (2020) Wuxi City Real Estate Ownership Certificate No. 0178538	C01 Civil engineering-Parking shed 1	Industrial land/industry, transportation, storage	No. 28, 30, Xinzhou Road, No. 27, 29, Xixing Road	Reinforced concrete structure	54.21	264,341.44	247,599.81
16	Su (2020) Wuxi City Real Estate Ownership Certificate No. 0178538	C01 Civil engineering-Parking shed 2	Industrial land/industry, transportation, storage	No. 28, 30, Xinzhou Road, No. 27, 29, Xixing Road	Reinforced concrete structure	141.71	761,175.95	712,968.15
17	Su (2020) Wuxi City Real Estate Ownership Certificate No. 0178538	C01 Civil engineering-Parking shed 3	Industrial land/industry, transportation, storage	No. 28, 30, Xinzhou Road, No. 27, 29, Xixing Road	Reinforced concrete structure	404.98	2,127,470.84	1,992,731.01
18	Su (2020) Wuxi City Real Estate Ownership Certificate No. 0178538	OS Building acquisition Overall outdoor supporting projects Landscaping	Industrial land/industry, transportation, storage	No. 28, 30, Xinzhou Road, No. 27, 29, Xixing Road	Reinforced concrete structure	14,952.40	52,087,150.03	49,942,895.68

3. Equipment assets

(1) Machinery equipment

2,349 pieces of machinery equipment were purchased between 2018 and 2021 and mainly production, research and development equipment required for the normal production and operation activities of the company, including lithography machines, ion implantation and laminating machines, measuring instruments and etching machines. They are in good condition at present.

(2) Transportation equipment

There are 6 types of vehicles in total, which were purchased for office purposes from 2018 to 2020, and mainly included Buick GL8 Commercial car, Toyota Coaster, and patrol cars. They are in good condition.

(3) Electronic equipment

There are 5,272 pieces of electronic equipments in total (mainly including various types of office equipment such as computers, printers and projectors) and office furniture (such as desks, chairs and bookcases), mainly distributed in the offices of various departments in the fab of the valued entity. The electronic equipments are in good condition.

4. Construction in progress

Construction in progress – equipment project mainly includes installation works for lithography machines, etching machines, cleaning equipment, chemical vapor deposition equipment, and measuring equipment. They are located in the premises of the company and in normal progress at present.

5. Long-term receivables

Long-term receivables represent the interest-bearing borrowings from the valued entity to Huahong Real Estate (Wuxi) Co., Ltd., an organization with its long-term equity investment.

6. Long-term equity investment

Long-term equity investments included in the scope of the valuation are as follows:

S/N	Name of Organization with Long-term Equity Investments	Shareholding Percentage *(%)*	Amount of Investment *(RMB)*	Carrying Value *(RMB)*	Business Condition	Industry
1	Huahong Real Estate (Wuxi) Co., Ltd.	100.00%	30,000,000.00	30,000,000.00	Normal	Real estate development and management

7. Intangible assets declared by the company

Intangible assets declared by the company are land use rights, and other intangible assets mainly including non-patented technologies and software, the details of which are as follows:

(1) Intangible assets – land use rights

There is one land use right within the scope of valuation. For the purpose of transferring the land, the state-owned land use right certificate has been obtained, and the owner of the land use right is Hua Hong Semiconductor (Wuxi) Limited. The details are as follows:

S/N	Land Right Certificate No.	Name of Land Parcel	Date of Acquisition	Date of Termination	Use of Land	Area (m^2)	Carrying Amount (RMB)
1	Su (2020) Wuxi City Real Estate Ownership Certificate No. 0178538	State-owned construction land	2018/02/27	2068/02/27	Industrial project construction	466,456.10	264,939,123.26

(2) Intangible assets – software

As of the valuation benchmark date, there are 54 pieces of software in total covered in the records of accounts in the valued entity, the details of which are as follows:

S/N	Software Name	Purchase Date	Original Recorded Value (RMB)	Carrying Amount (RMB)
1	BarTender 2016 Professional Edition	2019/10/30	2,350.00	1,527.50
2	DevExpress Interface Control Software	2019/11/30	33,597.35	22,398.23
3	SYMANTEC Endpoint Protection Antivirus Software	2019/11/30	72,864.00	50,409.33
4	Oracle Partitioning	2019/11/30	210,263.40	140,175.60
5	Oracle Real Application Clusters	2019/11/30	276,638.04	184,425.36
6	Oracle Database Enterprise Edition	2019/11/30	4,282,080.00	2,854,720.00
7	Proxifier Software	2019/11/30	2,353.96	1,569.30
8	YMS and DMS System Software	2020/06/30	7,243,704.78	5,674,235.41
9	YMS and DMS System Software	2020/06/30	7,243,704.77	5,674,235.40
10	BPM Application	2020/07/31	136,463.70	109,170.96
11	Wuxi AD and Mail System	2020/09/30	146,225.50	121,854.58
12	BPM Platform Transformation and Expansion Optimization Project	2020/09/30	814,925.76	679,104.80
13	ERP Promotion Project	2020/09/30	1,603,773.58	1,336,477.98
14	ETL Development Software–IBM DataStage	2020/09/30	430,000.00	358,333.33
15	BPM Wuxi Promotion Project	2020/10/29	4,616,630.00	3,924,135.50

S/N	Software Name	Purchase Date	Original Recorded Value *(RMB)*	Carrying Amount *(RMB)*
16	B2B Extension Project	2020/10/29	935,000.00	800,983.33
17	ERP Promotion Standard Cost Development Project	2020/10/29	261,623.11	222,379.63
18	e-COA Raw Material Reporting System	2020/10/29	270,000.00	229,500.00
19	Client Backup Project DLO Software License	2020/10/29	79,447.89	67,530.71
20	CIM System Integration Project OEM Software	2020/10/29	12,878,476.56	10,946,705.07
21	OA Client Management Project	2020/10/29	262,825.66	223,401.82
22	CIM System Integration Project IBM Software	2020/10/29	886,827.60	753,803.46
23	VMware vSphere 6	2020/10/30	216,825.20	184,301.42
24	VMware vCenter Server	2020/10/30	21,106.88	17,940.86
25	IBM Spectrum Scale Software	2020/10/30	241,769.69	205,504.24
26	SpreadCom 8.0	2020/10/30	42,213.76	35,881.69
27	Spread 8.0	2020/10/30	86,346.32	73,394.36
28	Visual Studio	2020/10/30	63,320.63	53,822.54
29	TeeChart.NET	2020/10/30	7,675.23	6,523.95
30	Tibco Software	2020/10/30	1,696,225.47	1,441,791.66
31	JMP Commercial Software	2020/11/30	83,893.80	72,707.96
32	zabbix Monitoring Project	2020/11/30	265,094.34	229,748.42
33	SafeQ Print Management Software	2020/11/30	73,628.32	63,811.20
34	Development of Financial Fixed Assets Forecast Analysis System	2020/11/30	395,000.00	342,333.33
35	ATEN Control Software	2021/01/29	78,318.58	70,486.72
36	Brion OPC/OPCV software and licenses	2021/03/31	6,533,273.84	6,097,722.25
37	BPM Wuxi Promotion and Implementation Service Project	2021/04/30	473,370.00	449,701.50
38	Exchange CAL Client Access License Enterprise Edition	2021/04/30	102,875.00	97,731.25
39	Exchange CAL Client Access License Standard Edition	2021/04/30	118,362.50	112,444.37
40	Exchange Server Enterprise Mail System	2021/04/30	28,433.63	27,011.95
41	Windows Server 2019	2021/04/30	205,619.40	195,338.43
42	Office 2019	2021/04/30	705,752.50	670,464.87
43	Windows 10	2021/04/30	321,902.50	305,807.37
44	IBM CDC Software license	2021/04/30	132,744.00	126,106.80
45	IBM DB2 Software license	2021/04/30	402,656.00	382,523.20
46	Set-up of Special Library Management System for Silicon Wafers	2021/04/30	200,000.00	190,000.00
47	Remote Desktop Licensing	2021/04/30	52,035.20	49,433.44

S/N	Software Name	Purchase Date	Original Recorded Value *(RMB)*	Carrying Amount *(RMB)*
48	Windows Server CAL	2021/04/30	73,010.00	69,359.50
49	IP service fee to Synopsys	2021/06/30	1,018,912.00	1,001,930.13
50	55nm LP ECN charge	2021/06/30	1,243,666.47	1,222,938.70
51	Invoice Management System	2021/06/30	20,884.84	20,536.76
52	Lanke Financial Software	2021/06/30	486,725.66	478,613.57
53	eSpace U1900 User License	2021/06/30	127,420.00	125,296.33
54	Jiangsu Export Tax Rebate Declaration Software	2021/06/30	11,504.42	11,312.68

(3) Intangible assets - patents

As of the valuation benchmark date, a total of 11 non-patented technologies are covered in the records of accounts in the valued entity, details of which are as follows:

S/N	Intellectual Property Name	Category	Date of acquisition	Original Carrying Amount *(RMB)*	Carrying Amount *(RMB)*
1	RTD license in CIM system integration project	Intangible assets-technology	2020/06/30	10,312,050.00	8,077,772.50
2	CIM system integration project intellectual property	Intangible assets-technology	2020/06/30	2,706,694.00	2,120,243.63
3	OPC software and perpetual license	Intangible assets-technology	2020/06/30	3,265,360.00	2,557,865.33
4	VMware vSphere 6 license	Intangible assets-technology	2020/10/29	10,752.21	9,139.38
5	VMware vSphere 6 license	Intangible assets-technology	2020/10/29	10,752.21	9,139.38
6	VMware vSphere 6 license	Intangible assets-technology	2020/10/29	10,752.21	9,139.38
7	VMware vSphere 6 license	Intangible assets-technology	2020/10/29	10,752.21	9,139.38
8	Red Hat Enterprise Linux License	Intangible assets-technology	2020/10/30	82,508.71	70,132.39
9	Tableau Creater User License	Intangible assets-technology	2020/10/30	65,239.44	55,453.53
10	Tableau Explorer User License	Intangible assets-technology	2020/10/30	172,692.64	146,788.75
11	VMware vSphere 6 License	Intangible assets-technology	2020/11/30	80,000.00	69,333.33

8. Other off-balance sheet assets declared by the company

As of the valuation benchmark date, the intangible assets declared by the company and not recovered in the records of accounts are patents, details of which are as follows:

(1) As of the valuation benchmark date, the Chinese patents with self-owned rights declared by the company are detailed as follows:

S/N	Patent Name	Patent Application No.	Patent Application Date	Status	Patent Granting Date	Certificate No.	Validity
1	Forming method of aluminum pad and device containing aluminum pad	201911291628.0	2019-12-16	Authorised	2021-08-24	4632576	Valid
2	Forming method of aluminum pad structure and device containing aluminum pad structure	201911291646.9	2019-12-16	Authorised	2021-08-24	4635902	Valid
3	LDMOS device and its manufacturing method	201911325026.2	2019-12-20	Authorised	2021-08-24	4631604	Valid
4	Manufacturing method of LDMOS device, LDMOS device	201911324379.0	2019-12-19	Authorised	2021-08-24	4635425	Valid
5	Lithography machine alignment method	201911308814.0	2019-12-18	Authorised	2021-08-24	4635423	Valid
6	Monitoring method for copper oxide removal in copper interconnect NDC process	202010359959.X	2020-04-30	Authorised	2021-08-24	4632457	Valid

As of the valuation benchmark date, the company has 463 pending Chinese patents and 11 pending US patents.

(2) As of the valuation benchmark date, the licensed intangible assets declared by the company and not recovered in the records of accounts are detailed as follows:

S/N	Content or Name	Category	Platform	Patent, Instrument, IP No.	Right Holders	Remark
1	Improvement method of IGBT backside metallization	Patent	1200V IGBT platform	201410405805.4	Hua Hong Wuxi, HHGrace	Licensed
2	Gate structure of IGBT device	Patent	1200V IGBT platform	201410490036.2	Hua Hong Wuxi, HHGrace	Licensed
3	Process method for improving IGBT backside metallization	Patent	1200V IGBT platform	201510050448.9	Hua Hong Wuxi, HHGrace	Licensed

S/N	Content or Name	Category	Platform	Patent, Instrument, IP No.	Right Holders	Remark
4	Process method of IGBT backside metallization annealing	Patent	1200V IGBT platform	201510270323.7	Hua Hong Wuxi, HHGrace	Licensed
5	Charge storage IGBT and its manufacturing method	Patent	1200V IGBT platform	201610484792.3	Hua Hong Wuxi, HHGrace	Licensed
6	Charge storage IGBT and its manufacturing method	Patent	1200V IGBT platform	201610671728.6	Hua Hong Wuxi, HHGrace	Licensed
7	Improvement method of IGBT negative resistance problem	Patent	1200V IGBT platform	201410307058.0	Hua Hong Wuxi, HHGrace	Licensed
8	IGBT with reverse freewheeling capability and its manufacturing method	Patent	1200V IGBT platform	201610566543.9	Hua Hong Wuxi, HHGrace	Licensed
9	Carrier storage IGBT and its manufacturing method	Patent	1200V IGBT platform	201610620549.X	Hua Hong Wuxi, HHGrace	Licensed
10	IGBT structure with integrated low-leakage Schottky diode and its preparation method	Patent	1200V IGBT platform	201110229038.2	Hua Hong Wuxi, HHGrace	Licensed
11	Manufacturing method of IGBT device	Patent	1200V IGBT platform	201110295394.4	Hua Hong Wuxi, HHGrace	Licensed
12	Preparation method of IGBT device	Patent	1200V IGBT platform	201110183356.X	Hua Hong Wuxi, HHGrace	Licensed
13	Manufacturing method of combined super junction punch-through trench IGBT device	Patent	1200V IGBT platform	201110383157.3	Hua Hong Wuxi, HHGrace	Licensed
14	Manufacturing method of field-stop IGBT devices from a substrate having an epitaxial layer	Patent	1200V IGBT platform	201110394424.7	Hua Hong Wuxi, HHGrace	Licensed
15	Manufacturing method of IGBT device combined with fast recovery tube	Patent	1200V IGBT platform	201110383511.2	Hua Hong Wuxi, HHGrace	Licensed
16	Reverse conduction IGBT semiconductor device and its manufacturing method	Patent	1200V IGBT platform	201210064065.3	Hua Hong Wuxi, HHGrace	Licensed
17	Reverse conduction IGBT semiconductor device and its manufacturing method	Patent	1200V IGBT platform	201210064071.9	Hua Hong Wuxi, HHGrace	Licensed
18	IGBT device and its manufacturing method	Patent	1200V IGBT platform	201210262423.1	Hua Hong Wuxi, HHGrace	Licensed

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19	Backside impurity activation method for IGBT thin wafers	Patent	1200V IGBT platform	201310090771.X	Hua Hong Wuxi, HHGrace	Licensed
20	Process method for realizing minority carrier storage layer trench IGBT	Patent	1200V IGBT platform	201210436186.6	Hua Hong Wuxi, HHGrace	Licensed
21	Backside process method of IGBT devices	Patent	1200V IGBT platform	201210532799.X	Hua Hong Wuxi, HHGrace	Licensed
22	FRD-embedded IGBT device and manufacturing method	Patent	1200V IGBT platform	201310280489.8	Hua Hong Wuxi, HHGrace	Licensed
23	IGBT device with integrated super-barrier rectifier and manufacturing method	Patent	1200V IGBT platform	201310509003.3	Hua Hong Wuxi, HHGrace	Licensed
24	Manufacturing method of IGBT device that effectively reduces power consumption	Patent	1200V IGBT platform	201310684374.5	Hua Hong Wuxi, HHGrace	Licensed
25	Method for growing trench gate of low stress IGBT	Patent	1200V IGBT platform	201310354099.0	Hua Hong Wuxi, HHGrace	Licensed
26	Method for growing high-reliability IGBT metal connections	Patent	1200V IGBT platform	201310359631.8	Hua Hong Wuxi, HHGrace	Licensed
27	Method for growing high-reliability IGBT terminal guard ring	Patent	1200V IGBT platform	201310571350.9	Hua Hong Wuxi, HHGrace	Licensed
28	Reverse conduction IGBT semiconductor device and its manufacturing method	Patent	1200V IGBT platform	201310645774.5	Hua Hong Wuxi, HHGrace	Licensed
29	Manufacturing method of advanced backside technology to improve IGBT performance	Patent	1200V IGBT platform	201310684349.7	Hua Hong Wuxi, HHGrace	Licensed
30	Super junction transistor and its forming method	Patent	Super Junction platform	201310371204.1	Hua Hong Wuxi, HHGrace	Licensed
31	Super junction transistor and its forming method	Patent	Super Junction platform	201310371353.8	Hua Hong Wuxi, HHGrace	Licensed
32	Trench filling method for super junctions	Patent	Super Junction platform	201710519221.3	Hua Hong Wuxi, HHGrace	Licensed
33	Trench filling method for super junctions	Patent	Super Junction platform	201710519255.2	Hua Hong Wuxi, HHGrace	Licensed
34	Manufacturing method of super junction semiconductor device	Patent	Super Junction platform	201410459207.5	Hua Hong Wuxi, HHGrace	Licensed

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35	Manufacturing method of super structure	Patent	Super Junction platform	201510024006.7	Hua Hong Wuxi, HHGrace	Licensed
36	Layout structure of trench type super junction device and its manufacturing method	Patent	Super Junction platform	201510033925.0	Hua Hong Wuxi, HHGrace	Licensed
37	Alignment mark fabrication method for twice-trenched superstructure devices	Patent	Super Junction platform	201510067905.5	Hua Hong Wuxi, HHGrace	Licensed
38	Manufacturing method of trench type super junction device	Patent	Super Junction platform	201510184277.9	Hua Hong Wuxi, HHGrace	Licensed
39	Manufacturing method of deep-trench super junction	Patent	Super Junction platform	201510458686.3	Hua Hong Wuxi, HHGrace	Licensed
40	Super junction structure of trench type super junction devices	Patent	Super Junction platform	201510458488.7	Hua Hong Wuxi, HHGrace	Licensed
41	Manufacturing method of trench super junction	Patent	Super Junction platform	201610024800.6	Hua Hong Wuxi, HHGrace	Licensed
42	Manufacturing method of trench type super junction device	Patent	Super Junction platform	201610025368.2	Hua Hong Wuxi, HHGrace	Licensed
43	Manufacturing method of trench super junction	Patent	Super Junction platform	201610025341.3	Hua Hong Wuxi, HHGrace	Licensed
44	Trench type super junction epitaxial filling method	Patent	Super Junction platform	201610065771.8	Hua Hong Wuxi, HHGrace	Licensed
45	Manufacturing method of trench super junction	Patent	Super Junction platform	201610064085.9	Hua Hong Wuxi, HHGrace	Licensed
46	Manufacturing method of trench super junction	Patent	Super Junction platform	201610064035.0	Hua Hong Wuxi, HHGrace	Licensed
47	Manufacturing method of trench super junction	Patent	Super Junction platform	201610065796.8	Hua Hong Wuxi, HHGrace	Licensed
48	Super junction and its manufacturing method	Patent	Super Junction platform	201610086759.5	Hua Hong Wuxi, HHGrace	Licensed
49	Trench super junction and its manufacturing method	Patent	Super Junction platform	201710003927.4	Hua Hong Wuxi, HHGrace	Licensed
50	Planar gate trench type super junction device and its manufacturing method	Patent	Super Junction platform	201710004043.0	Hua Hong Wuxi, HHGrace	Licensed
51	Manufacturing method of planar gate superjunction device	Patent	Super Junction platform	201710003938.2	Hua Hong Wuxi, HHGrace	Licensed
52	Manufacturing method of super junction	Patent	Super Junction platform	201710599662.9	Hua Hong Wuxi, HHGrace	Licensed

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53	Method for obtaining vertical channel high voltage super junction semiconductor device	Patent	Super Junction platform	200910057313.X	Hua Hong Wuxi, HHGrace	Licensed
54	Manufacturing method of vertical region of super junction MOS tube	Patent	Super Junction platform	200910057736.1	Hua Hong Wuxi, HHGrace	Licensed
55	Manufacturing method of vertical region of super junction MOS tube	Patent	Super Junction platform	200910057731.9	Hua Hong Wuxi, HHGrace	Licensed
56	Termination protection structure of super junction device and its manufacturing method	Patent	Super Junction platform	201010141072.X	Hua Hong Wuxi, HHGrace	Licensed
57	Super junction semiconductor device with trench termination structure	Patent	Super Junction platform	201010221589.X	Hua Hong Wuxi, HHGrace	Licensed
58	Super junction LDMOS device and manufacturing method	Patent	Super Junction platform	201010265250.X	Hua Hong Wuxi, HHGrace	Licensed
59	A method for improving the etched boundary morphology of deep trenches in super junction devices	Patent	Super Junction platform	201010280509.8	Hua Hong Wuxi, HHGrace	Licensed
60	Manufacturing method of super junction semiconductor device	Patent	Super Junction platform	201010265294.2	Hua Hong Wuxi, HHGrace	Licensed
61	Termination protection structure of super junction semiconductor devices and its manufacturing method	Patent	Super Junction platform	201010290451.5	Hua Hong Wuxi, HHGrace	Licensed
62	Method for manufacturing super junction devices using wet etching	Patent	Super Junction platform	201010276031.1	Hua Hong Wuxi, HHGrace	Licensed
63	Super junction semiconductor device and its manufacturing method	Patent	Super Junction platform	201010553535.3	Hua Hong Wuxi, HHGrace	Licensed
64	Manufacturing method of super junction semiconductor device	Patent	Super Junction platform	201010550592.6	Hua Hong Wuxi, HHGrace	Licensed

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65	Manufacturing method of super junction semiconductor device structure	Patent	Super Junction platform	201010559050.5	Hua Hong Wuxi, HHGrace	Licensed
66	Termination protection structure for super junction devices	Patent	Super Junction platform	201010555561.X	Hua Hong Wuxi, HHGrace	Licensed
67	Methods of integrating Schottky diodes in super junction MOSFET	Patent	Super Junction platform	201110021587.0	Hua Hong Wuxi, HHGrace	Licensed
68	Method for removing silicon ridges created during epitaxial deposition of super junction high voltage devices	Patent	Super Junction platform	201110267044.7	Hua Hong Wuxi, HHGrace	Licensed
69	Super junction semiconductor device structure and its manufacturing method	Patent	Super Junction platform	201110092102.7	Hua Hong Wuxi, HHGrace	Licensed
70	A kind of preparation process method of super junction	Patent	Super Junction platform	201110323883.6	Hua Hong Wuxi, HHGrace	Licensed
71	Super junction device and its manufacturing method	Patent	Super Junction platform	201110265394.X	Hua Hong Wuxi, HHGrace	Licensed
72	Super junction semiconductor device and its manufacturing method	Patent	Super Junction platform	201110281250.3	Hua Hong Wuxi, HHGrace	Licensed
73	Termination protection structure for super junction devices and manufacturing method	Patent	Super Junction platform	201110086240.4	Hua Hong Wuxi, HHGrace	Licensed
74	Super junction structure, super junction MOS transistor and manufacturing method thereof	Patent	Super Junction platform	201110295521.0	Hua Hong Wuxi, HHGrace	Licensed
75	Removal method of super junction sacrificial oxide layer	Patent	Super Junction platform	201110363173.6	Hua Hong Wuxi, HHGrace	Licensed
76	Super junction device and its manufacturing method	Patent	Super Junction platform	201110330131.2	Hua Hong Wuxi, HHGrace	Licensed
77	Super junction device and manufacturing method	Patent	Super Junction platform	201110097476.8	Hua Hong Wuxi, HHGrace	Licensed
78	Termination protection structure for super junction devices	Patent	Super Junction platform	201110407746.0	Hua Hong Wuxi, HHGrace	Licensed
79	A deep trench structure in a super junction process and its manufacturing method	Patent	Super Junction platform	201110433621.5	Hua Hong Wuxi, HHGrace	Licensed

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80	Preparation method of planar super junction	Patent	Super Junction platform	201110391342.7	Hua Hong Wuxi, HHGrace	Licensed
81	Manufacturing method of super junction double-diffused metal oxide semiconductor devices	Patent	Super Junction platform	201110372018.0	Hua Hong Wuxi, HHGrace	Licensed
82	Super junction power device termination structure	Patent	Super Junction platform	201110391839.9	Hua Hong Wuxi, HHGrace	Licensed
83	Manufacturing method of combined super junction punch-through trench IGBT device	Patent	Super Junction platform	201110383157.3	Hua Hong Wuxi, HHGrace	Licensed
84	Termination protection structure for super junction devices and manufacturing method	Patent	Super Junction platform	201110186069.4	Hua Hong Wuxi, HHGrace	Licensed
85	Super junction device and its manufacturing method	Patent	Super Junction platform	201110186050.X	Hua Hong Wuxi, HHGrace	Licensed
86	Super junction device	Patent	Super Junction platform	201210139893.9	Hua Hong Wuxi, HHGrace	Licensed
87	Termination protection structure of super junction MOSFET	Patent	Super Junction platform	201210174555.9	Hua Hong Wuxi, HHGrace	Licensed
88	Forming method of gate trench of deep trench type super junction containing trench gate	Patent	Super Junction platform	201210133322.4	Hua Hong Wuxi, HHGrace	Licensed
89	Super junction power device and its manufacturing method	Patent	Super Junction platform	201210216629.0	Hua Hong Wuxi, HHGrace	Licensed
90	Super junction preparation process	Patent	Super Junction platform	201210163767.7	Hua Hong Wuxi, HHGrace	Licensed
91	Epitaxial wafer fabrication method suitable for super junction devices	Patent	Super Junction platform	201210437553.4	Hua Hong Wuxi, HHGrace	Licensed
92	Super junction device and its manufacturing method	Patent	Super Junction platform	201210326114.6	Hua Hong Wuxi, HHGrace	Licensed
93	Super junction device termination structure	Patent	Super Junction platform	201210335213.0	Hua Hong Wuxi, HHGrace	Licensed
94	Super junction device and its manufacturing method	Patent	Super Junction platform	201210325859.0	Hua Hong Wuxi, HHGrace	Licensed
95	Termination protection structure for super junction device	Patent	Super Junction platform	201210337294.8	Hua Hong Wuxi, HHGrace	Licensed

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96	A method to improve the planarization of super junction deep trench epitaxial layers	Patent	Super Junction platform	201210409066.7	Hua Hong Wuxi, HHGrace	Licensed
97	A kind of super junction epitaxial CMP process method	Patent	Super Junction platform	201210496251.4	Hua Hong Wuxi, HHGrace	Licensed
98	Termination protection structure for super junction device	Patent	Super Junction platform	201210552715.9	Hua Hong Wuxi, HHGrace	Licensed
99	Edge epitaxy planarization of superjunction devices	Patent	Super Junction platform	201310009217.4	Hua Hong Wuxi, HHGrace	Licensed
100	Super junction device and its manufacturing method	Patent	Super Junction platform	201310073595.9	Hua Hong Wuxi, HHGrace	Licensed
101	Method for solving polysilicon residues in guard ring field oxygen sidewalls of super junction products	Patent	Super Junction platform	201310285072.0	Hua Hong Wuxi, HHGrace	Licensed
102	Super junction device and its manufacturing method	Patent	Super Junction platform	201310380359.1	Hua Hong Wuxi, HHGrace	Licensed
103	Super junction device and its manufacturing method	Patent	Super Junction platform	201310374023.4	Hua Hong Wuxi, HHGrace	Licensed
104	Structure of super junction MOSFET devices	Patent	Super Junction platform	201310574061.4	Hua Hong Wuxi, HHGrace	Licensed
105	Super junction device and manufacturing method	Patent	Super Junction platform	201310390256.3	Hua Hong Wuxi, HHGrace	Licensed
106	Super junction device and its manufacturing method	Patent	Super Junction platform	201310484725.8	Hua Hong Wuxi, HHGrace	Licensed
107	Forming method of P-type pillar in N-type super junction VDMOS	Patent	Super Junction platform	201010027302.X	Hua Hong Wuxi, HHGrace	Licensed
108	Forming method of polysilicon P-type pillar in N-type super junction VDMOS	Patent	Super Junction platform	201010027303.4	Hua Hong Wuxi, HHGrace	Licensed
109	Super junction VDMOS device and its manufacturing method	Patent	Super Junction platform	201010108871.7	Hua Hong Wuxi, HHGrace	Licensed
110	Integrated structure of trench gate MOSFET with shielded gate and Schottky diode	Patent	SGT platform	201410398107.6	Hua Hong Wuxi, HHGrace	Licensed
111	Forming method of shielded gate transistor	Patent	SGT platform	201510507260.2	Hua Hong Wuxi, HHGrace	Licensed

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112	Manufacturing method of trench gate MOSFET with shielded gate	Patent	SGT platform	201510545834.5	Hua Hong Wuxi, HHGrace	Licensed
113	Manufacturing method of trench gate MOSFET with shielded gate	Patent	SGT platform	201510707261.1	Hua Hong Wuxi, HHGrace	Licensed
114	Shielded gate oxide layer of shielded gate-deep trench MOSFET and its forming method	Patent	SGT platform	201610064114.1	Hua Hong Wuxi, HHGrace	Licensed
115	Gate oxide over-allowance time processing method of trench gate device with shielded gate	Patent	SGT platform	201610620535.8	Hua Hong Wuxi, HHGrace	Licensed
116	Manufacturing method of trench gate power device with shielded gate	Patent	SGT platform	201510992471.X	Hua Hong Wuxi, HHGrace	Licensed
117	Manufacturing method of trench-separated side-gate MOSFET with shielded gate	Patent	SGT platform	201510992756.3	Hua Hong Wuxi, HHGrace	Licensed
118	Manufacturing method of shielded gate trench MOSFET	Patent	SGT platform	201610373504.7	Hua Hong Wuxi, HHGrace	Licensed
119	Manufacturing method of shielded gate trench MOSFET	Patent	SGT platform	201610374749.1	Hua Hong Wuxi, HHGrace	Licensed
120	Manufacturing method of shielded gate power MOSFET	Patent	SGT platform	201610329379.X	Hua Hong Wuxi, HHGrace	Licensed
121	Manufacturing method of shielded gate trench MOSFET	Patent	SGT platform	201610374746.8	Hua Hong Wuxi, HHGrace	Licensed
122	Shielded gate trench power device and its manufacturing method	Patent	SGT platform	201610822429.8	Hua Hong Wuxi, HHGrace	Licensed
123	Shielded gate trench MOSFET and its manufacturing method	Patent	SGT platform	201710629765.5	Hua Hong Wuxi, HHGrace	Licensed
124	Shielded gate trench power MOSTET device and its manufacturing method	Patent	SGT platform	201710903865.2	Hua Hong Wuxi, HHGrace	Licensed

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125	Power MOS device structure with shielded gate and its preparation method	Patent	SGT platform	201010027314.2	Hua Hong Wuxi, HHGrace	Licensed
126	VDMOS device with shielding gate and its preparation method	Patent	SGT platform	201010595417.9	Hua Hong Wuxi, HHGrace	Licensed
127	VDMOS structure with shielding gate and its preparation method	Patent	SGT platform	201010595051.5	Hua Hong Wuxi, HHGrace	Licensed
128	VDMOS device with shielding gate and its preparation method	Patent	SGT platform	201010595417.9	Hua Hong Wuxi, HHGrace	Licensed
129	VDMOS structure with shielding gate and its preparation method	Patent	SGT platform	201010595051.5	Hua Hong Wuxi, HHGrace	Licensed
130	Test structure of VDMOS transistor	Patent	DMOS platform	201010133570.X	Hua Hong Wuxi, HHGrace	Licensed
131	Forming method of VDMOS device	Patent	DMOS platform	201110058213.6	Hua Hong Wuxi, HHGrace	Licensed
132	Semiconductor device and forming method, VDMOS transistor and forming method	Patent	DMOS platform	201110103208.2	Hua Hong Wuxi, HHGrace	Licensed
133	Preparation method of double gate VDMOS with self-aligned metal silicide process	Patent	DMOS platform	201010595419.8	Hua Hong Wuxi, HHGrace	Licensed
134	A kind of sidewall manufacturing method for self-aligned source and drain of embedded flash memory	Patent	55/90nm Eflash/ NOR platform	200710172267.9	Hua Hong Wuxi, HHGrace	Licensed
135	Efficient erasing and writing of split-gate flash	Patent	55/90nm Eflash/ NOR platform	200810202698.X	Hua Hong Wuxi, HHGrace	Licensed
136	Manufacturing method of split-gate flash	Patent	55/90nm Eflash/ NOR platform	200810204359.5	Hua Hong Wuxi, HHGrace	Licensed
137	Operation method of split-gate flash	Patent	55/90nm Eflash/ NOR platform	200910049791.6	Hua Hong Wuxi, HHGrace	Licensed
138	A split-gate buried floating gate type non-volatile memory cell and its manufacturing method	Patent	55/90nm Eflash/ NOR platform	200910195419.6	Hua Hong Wuxi, HHGrace	Licensed

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139	A flash memory	Patent	55/90nm Eflash/ NOR platform	200910194584.X	Hua Hong Wuxi, HHGrace	Licensed
140	Test method of flash memory chip	Patent	55/90nm Eflash/ NOR platform	200910198561.6	Hua Hong Wuxi, HHGrace	Licensed
141	Split-gate flash with shared memory cells	Patent	55/90nm Eflash/ NOR platform	200910197120.4	Hua Hong Wuxi, HHGrace	Licensed
142	A method of making flash memory	Patent	55/90nm Eflash/ NOR platform	201010123670.4	Hua Hong Wuxi, HHGrace	Licensed
143	Split-gate buried floating gate nonvolatile memory and its manufacturing method	Patent	55/90nm Eflash/ NOR platform	201010022708.9	Hua Hong Wuxi, HHGrace	Licensed
144	Manufacturing method of split-gate buried floating gate nonvolatile memory	Patent	55/90nm Eflash/ NOR platform	201010102331.8	Hua Hong Wuxi, HHGrace	Licensed
145	Manufacturing method of split-gate flash with shared word lines	Patent	55/90nm Eflash/ NOR platform	201010102356.8	Hua Hong Wuxi, HHGrace	Licensed
146	Contactless split-gate flash with shared word lines and its manufacturing method	Patent	55/90nm Eflash/ NOR platform	201019063032.5	Hua Hong Wuxi, HHGrace	Licensed
147	Contactless split-gate flash with shared word lines	Patent	55/90nm Eflash/ NOR platform	201010102359.1	Hua Hong Wuxi, HHGrace	Licensed
148	Method for obtaining capacitive coupling ratio of flash memory cells	Patent	55/90nm Eflash/ NOR platform	201010164928.5	Hua Hong Wuxi, HHGrace	Licensed
149	Erase method to improve the endurance of split-gate flash	Patent	55/90nm Eflash/ NOR platform	201010102344.5	Hua Hong Wuxi, HHGrace	Licensed
150	Discrete gate flash memory and its manufacturing method	Patent	55/90nm Eflash/ NOR platform	201010123642.2	Hua Hong Wuxi, HHGrace	Licensed
151	Manufacturing method of non-contact split-gate flash memory of shared word line	Patent	55/90nm Eflash/ NOR platform	201019063031.0	Hua Hong Wuxi, HHGrace	Licensed
152	A fabrication method of self-aligned polysilicon floating gate	Patent	55/90nm Eflash/ NOR platform	201010123730.2	Hua Hong Wuxi, HHGrace	Licensed
153	Manufacturing process of nanocrystalline split-gate flash memory	Patent	55/90nm Eflash/ NOR platform	201019063030.6	Hua Hong Wuxi, HHGrace	Licensed

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154	Non-contact nanocrystalline split-gate flash memory of shared word lines and its manufacturing method	Patent	55/90nm Eflash/ NOR platform	201010172665.2	Hua Hong Wuxi, HHGrace	Licensed
155	Non-contact silicon nitride split-gate flash memory of shared word lines and its manufacturing method	Patent	55/90nm Eflash/ NOR platform	201010172664.8	Hua Hong Wuxi, HHGrace	Licensed
156	A flash memory using built-in self-test to improve read speed and its method	Patent	55/90nm Eflash/ NOR platform	201010187353.9	Hua Hong Wuxi, HHGrace	Licensed
157	A structure and method for reducing standby power consumption of flash memory	Patent	55/90nm Eflash/ NOR platform	201010198412.2	Hua Hong Wuxi, HHGrace	Licensed
158	Non-contact nanocrystalline split-gate flash memory of shared word lines	Patent	55/90nm Eflash/ NOR platform	201010164918.1	Hua Hong Wuxi, HHGrace	Licensed
159	Program verification method for split-gate flash memory cell	Patent	55/90nm Eflash/ NOR platform	201010235692.X	Hua Hong Wuxi, HHGrace	Licensed
160	Flash memory and its sense amplifier circuit	Patent	55/90nm Eflash/ NOR platform	201010203865.X	Hua Hong Wuxi, HHGrace	Licensed
161	Programming method for double split-gate flash memory array	Patent	55/90nm Eflash/ NOR platform	201010203952.5	Hua Hong Wuxi, HHGrace	Licensed
162	Row decoding circuit of double split-gate flash memory array and its driving method	Patent	55/90nm Eflash/ NOR platform	201010217954.X	Hua Hong Wuxi, HHGrace	Licensed
163	Column decoding circuit of double split-gate flash memory array	Patent	55/90nm Eflash/ NOR platform	201010217958.8	Hua Hong Wuxi, HHGrace	Licensed
164	Flash memory with virtual ground array	Patent	55/90nm Eflash/ NOR platform	201010253581.1	Hua Hong Wuxi, HHGrace	Licensed
165	Flash memory cell, flash memory device and its programming method	Patent	55/90nm Eflash/ NOR platform	201010504721.8	Hua Hong Wuxi, HHGrace	Licensed
166	Split-gate flash memory cell and its fabrication method	Patent	55/90nm Eflash/ NOR platform	201110009217.5	Hua Hong Wuxi, HHGrace	Licensed
167	Discrete-gate flash memory and its manufacturing method	Patent	55/90nm Eflash/ NOR platform	201110002794.1	Hua Hong Wuxi, HHGrace	Licensed
168	Split-gate flash memory cell and its fabrication method	Patent	55/90nm Eflash/ NOR platform	201110002731.6	Hua Hong Wuxi, HHGrace	Licensed

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169	Split-gate flash memory cell and its manufacturing method	Patent	55/90nm Eflash/ NOR platform	201110002780.X	Hua Hong Wuxi, HHGrace	Licensed
170	A flash memory circuit	Patent	55/90nm Eflash/ NOR platform	201110057568.3	Hua Hong Wuxi, HHGrace	Licensed
171	A data erasing method for NOR flash memory	Patent	55/90nm Eflash/ NOR platform	201110102999.7	Hua Hong Wuxi, HHGrace	Licensed
172	Flash write circuit with source line voltage compensation	Patent	55/90nm Eflash/ NOR platform	201110058352.9	Hua Hong Wuxi, HHGrace	Licensed
173	Split-gate flash memory cell and its manufacturing method	Patent	55/90nm Eflash/ NOR platform	201110058351.4	Hua Hong Wuxi, HHGrace	Licensed
174	Flash memory and its programming method	Patent	55/90nm Eflash/ NOR platform	201110061751.0	Hua Hong Wuxi, HHGrace	Licensed
175	Erase voltage rise control circuit of flash memory	Patent	55/90nm Eflash/ NOR platform	201110061741.7	Hua Hong Wuxi, HHGrace	Licensed
176	Split-gate flash memory cell and its manufacturing method	Patent	55/90nm Eflash/ NOR platform	201110057567.9	Hua Hong Wuxi, HHGrace	Licensed
177	Flash memory with self-adjusting word line voltage	Patent	55/90nm Eflash/ NOR platform	201110176529.5	Hua Hong Wuxi, HHGrace	Licensed
178	A programing/erasing method of flash memory	Patent	55/90nm Eflash/ NOR platform	201110176473.3	Hua Hong Wuxi, HHGrace	Licensed
179	Flash memory cell and its forming method	Patent	55/90nm Eflash/ NOR platform	201110300184.X	Hua Hong Wuxi, HHGrace	Licensed
180	Split-gate flash memory cell and its forming method	Patent	55/90nm Eflash/ NOR platform	201110335656.5	Hua Hong Wuxi, HHGrace	Licensed
181	Flash memory	Patent	55/90nm Eflash/ NOR platform	201110300758.3	Hua Hong Wuxi, HHGrace	Licensed
182	Flash memory and its fabrication method	Patent	55/90nm Eflash/ NOR platform	201110379488.X	Hua Hong Wuxi, HHGrace	Licensed
183	Flash memory cell and its forming method	Patent	55/90nm Eflash/ NOR platform	201110300213.2	Hua Hong Wuxi, HHGrace	Licensed
184	Flash memory cell of shared source line and its forming method	Patent	55/90nm Eflash/ NOR platform	201110298218.6	Hua Hong Wuxi, HHGrace	Licensed
185	Flash memory	Patent	55/90nm Eflash/ NOR platform	201110257705.8	Hua Hong Wuxi, HHGrace	Licensed
186	Manufacturing method of split-gate flash memory	Patent	55/90nm Eflash/ NOR platform	201110257373.3	Hua Hong Wuxi, HHGrace	Licensed
187	A fabrication method of embedded flash memory	Patent	55/90nm Eflash/ NOR platform	201110301256.2	Hua Hong Wuxi, HHGrace	Licensed

S/N	Content or Name	Category	Platform	Patent, Instrument, IP No.	Right Holders	Remark
188	A fabrication method of embedded flash memory	Patent	55/90nm Eflash/ NOR platform	201110341995.4	Hua Hong Wuxi, HHGrace	Licensed
189	Split-gate flash memory and its manufacturing method	Patent	55/90nm Eflash/ NOR platform	201110257403.0	Hua Hong Wuxi, HHGrace	Licensed
190	Flash memory and its data update method	Patent	55/90nm Eflash/ NOR platform	201110379669.2	Hua Hong Wuxi, HHGrace	Licensed
191	Floating gate structure in self-aligned flash memory and its manufacturing method	Patent	55/90nm Eflash/ NOR platform	201110341960.0	Hua Hong Wuxi, HHGrace	Licensed
192	Error check and correction method of flash memory	Patent	55/90nm Eflash/ NOR platform	201210030422.4	Hua Hong Wuxi, HHGrace	Licensed
193	Method for measuring coupling coefficients of floating gate device	Patent	55/90nm Eflash/ NOR platform	201210049220.4	Hua Hong Wuxi, HHGrace	Licensed
194	Manufacturing method of split-gate flash memory structure and split-gate flash memory structure	Patent	55/90nm Eflash/ NOR platform	201210061102.5	Hua Hong Wuxi, HHGrace	Licensed
195	Flash memory cell structure and flash memory device	Patent	55/90nm Eflash/ NOR platform	201210061965.2	Hua Hong Wuxi, HHGrace	Licensed
196	Memory cell of flash memory and its forming method	Patent	55/90nm Eflash/ NOR platform	201210124977.5	Hua Hong Wuxi, HHGrace	Licensed
197	Forming method of memory cell of flash memory	Patent	55/90nm Eflash/ NOR platform	201210124976.0	Hua Hong Wuxi, HHGrace	Licensed
198	Method for forming stable residual oxide on floating gate	Patent	55/90nm Eflash/ NOR platform	201210231297.3	Hua Hong Wuxi, HHGrace	Licensed
199	Forming method of memory cell of flash memory	Patent	55/90nm Eflash/ NOR platform	201210301659.1	Hua Hong Wuxi, HHGrace	Licensed
200	Forming method of flash memory device	Patent	55/90nm Eflash/ NOR platform	201210472760.3	Hua Hong Wuxi, HHGrace	Licensed
201	Split-gate flash memory and its forming method	Patent	55/90nm Eflash/ NOR platform	201210476512.6	Hua Hong Wuxi, HHGrace	Licensed
202	Split-gate flash memory and its forming method	Patent	55/90nm Eflash/ NOR platform	201210559560.1	Hua Hong Wuxi, HHGrace	Licensed
203	Mirrored flash memory device and its operation method	Patent	55/90nm Eflash/ NOR platform	201210507578.7	Hua Hong Wuxi, HHGrace	Licensed
204	Fabrication method of stacked-gate flash memory	Patent	55/90nm Eflash/ NOR platform	201210564088.0	Hua Hong Wuxi, HHGrace	Licensed
205	Split-gate flash memory and its forming method	Patent	55/90nm Eflash/ NOR platform	201210559669.5	Hua Hong Wuxi, HHGrace	Licensed

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206	Forming method of memory cell of flash memory	Patent	55/90nm Eflash/ NOR platform	201210559697.7	Hua Hong Wuxi, HHGrace	Licensed
207	Test method of flash memory	Patent	55/90nm Eflash/ NOR platform	201310032590.1	Hua Hong Wuxi, HHGrace	Licensed
208	Reliability testing method of flash memory	Patent	55/90nm Eflash/ NOR platform	201310032785.6	Hua Hong Wuxi, HHGrace	Licensed
209	Programming method of split-gate memory array	Patent	55/90nm Eflash/ NOR platform	201210577034.8	Hua Hong Wuxi, HHGrace	Licensed
210	Method for implementing top source line coupling in self-aligned split-gate flash memory	Patent	55/90nm Eflash/ NOR platform	201210507672.2	Hua Hong Wuxi, HHGrace	Licensed
211	Method for improving erase and endurance performance of split-gate flash memory	Patent	55/90nm Eflash/ NOR platform	201210507169.7	Hua Hong Wuxi, HHGrace	Licensed
212	Method for top source line coupling of split-gate flash memory	Patent	55/90nm Eflash/ NOR platform	201210576912.4	Hua Hong Wuxi, HHGrace	Licensed
213	Access method of double split-gate flash memory	Patent	55/90nm Eflash/ NOR platform	201310096188.X	Hua Hong Wuxi, HHGrace	Licensed
214	Split-gate flash memory and its forming method	Patent	55/90nm Eflash/ NOR platform	201310145492.9	Hua Hong Wuxi, HHGrace	Licensed
215	Forming method of flash memory cell	Patent	55/90nm Eflash/ NOR platform	201310315247.8	Hua Hong Wuxi, HHGrace	Licensed
216	Forming method of flash memory cell	Patent	55/90nm Eflash/ NOR platform	201310315027.5	Hua Hong Wuxi, HHGrace	Licensed
217	Fabrication method of floating gate and floating gate transistor	Patent	55/90nm Eflash/ NOR platform	201410080894.X	Hua Hong Wuxi, HHGrace	Licensed
218	Erasing method of split-gate flash memory	Patent	55/90nm Eflash/ NOR platform	201310261455.4	Hua Hong Wuxi, HHGrace	Licensed
219	Word line control method of flash memory and the erasing method of flash memory	Patent	55/90nm Eflash/ NOR platform	201310261449.9	Hua Hong Wuxi, HHGrace	Licensed
220	Split-gate flash memory and its forming method	Patent	55/90nm Eflash/ NOR platform	201310374526.1	Hua Hong Wuxi, HHGrace	Licensed
221	Flash memory device structure and fabrication method	Patent	55/90nm Eflash/ NOR platform	201310271004.9	Hua Hong Wuxi, HHGrace	Licensed
222	Split-gate flash memory structure and its manufacturing method	Patent	55/90nm Eflash/ NOR platform	201310270995.9	Hua Hong Wuxi, HHGrace	Licensed

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223	Flash memory cell and its forming method	Patent	55/90nm Eflash/ NOR platform	201310371237.6	Hua Hong Wuxi, HHGrace	Licensed
224	Built-in self-testing method and device for embedded flash memory	Patent	55/90nm Eflash/ NOR platform	201410078732.2	Hua Hong Wuxi, HHGrace	Licensed
225	Forming method of flash memory	Patent	55/90nm Eflash/ NOR platform	201410078727.1	Hua Hong Wuxi, HHGrace	Licensed
226	System and method for testing the current distribution of flash memory cell	Patent	55/90nm Eflash/ NOR platform	201410005717.5	Hua Hong Wuxi, HHGrace	Licensed
227	Method for improving coupling coefficient of control gate to floating gate in split-gate flash memory	Patent	55/90nm Eflash/ NOR platform	201310739106.9	Hua Hong Wuxi, HHGrace	Licensed
228	Operation method of flash memory cell	Patent	55/90nm Eflash/ NOR platform	201410083739.3	Hua Hong Wuxi, HHGrace	Licensed
229	Data recovery method of flash memory	Patent	55/90nm Eflash/ NOR platform	201410083702.0	Hua Hong Wuxi, HHGrace	Licensed
230	Memory array and its control method and flash memory	Patent	55/90nm Eflash/ NOR platform	201410097794.8	Hua Hong Wuxi, HHGrace	Licensed
231	Structure and manufacturing method of 3D tunneling floating gate memory	Patent	55/90nm Eflash/ NOR platform	201510458678.9	Hua Hong Wuxi, HHGrace	Licensed
232	Self-aligned split-gate flash memory device and its manufacturing method	Patent	55/90nm Eflash/ NOR platform	201610874555.8	Hua Hong Wuxi, HHGrace	Licensed
233	Flash memory low-speed read mode control circuit	Patent	55/90nm Eflash/ NOR platform	201410206549.6	Hua Hong Wuxi, HHGrace	Licensed
234	Flash memory and its operation method	Patent	55/90nm Eflash/ NOR platform	201410255397.9	Hua Hong Wuxi, HHGrace	Licensed
235	Gate structure and process method of split-gate power device	Patent	55/90nm Eflash/ NOR platform	201410835652.7	Hua Hong Wuxi, HHGrace	Licensed
236	Reference current generation circuit and method of flash memory	Patent	55/90nm Eflash/ NOR platform	201611025167.9	Hua Hong Wuxi, HHGrace	Licensed
237	Flash memory cell and its forming method	Patent	55/90nm Eflash/ NOR platform	201410425321.6	Hua Hong Wuxi, HHGrace	Licensed
238	Structure and manufacturing method of embedded flash memory	Patent	55/90nm Eflash/ NOR platform	201410466050.9	Hua Hong Wuxi, HHGrace	Licensed

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239	Testing method of embedded flash memory	Patent	55/90nm Eflash/ NOR platform	201410465843.9	Hua Hong Wuxi, HHGrace	Licensed
240	A type of flash memory and its forming method	Patent	55/90nm Eflash/ NOR platform	201410465841.X	Hua Hong Wuxi, HHGrace	Licensed
241	Manufacturing method of the floating gate tip of split gate flash memory	Patent	55/90nm Eflash/ NOR platform	201410464728.X	Hua Hong Wuxi, HHGrace	Licensed
242	Method for removing residual photoresistance in deep groove and a manufacturing method of flash memory	Patent	55/90nm Eflash/ NOR platform	201410464697.8	Hua Hong Wuxi, HHGrace	Licensed
243	High speed sensitive amplifier for flash memory	Patent	55/90nm Eflash/ NOR platform	201410668048.X	Hua Hong Wuxi, HHGrace	Licensed
244	Manufacturing method of split gate flash memory	Patent	55/90nm Eflash/ NOR platform	201410668060.0	Hua Hong Wuxi, HHGrace	Licensed
245	Mirroring split gate flash memory and its forming method	Patent	55/90nm Eflash/ NOR platform	201410855027.9	Hua Hong Wuxi, HHGrace	Licensed
246	Mirroring split gate flash memory and its forming method	Patent	55/90nm Eflash/ NOR platform	201410857366.0	Hua Hong Wuxi, HHGrace	Licensed
247	Method for stabilizing the threshold voltage of flash memory cell word line	Patent	55/90nm Eflash/ NOR platform	201410844118.2	Hua Hong Wuxi, HHGrace	Licensed
248	Method for controlling the threshold voltage of flash memory cells	Patent	55/90nm Eflash/ NOR platform	201410838328.0	Hua Hong Wuxi, HHGrace	Licensed
249	Test method for self-aligned lithography of flash memory products	Patent	55/90nm Eflash/ NOR platform	201410844354.4	Hua Hong Wuxi, HHGrace	Licensed
250	Manufacturing method of flash memory	Patent	55/90nm Eflash/ NOR platform	201510052252.3	Hua Hong Wuxi, HHGrace	Licensed
251	Monitoring method of coupling ratio of flash unit	Patent	55/90nm Eflash/ NOR platform	201510185881.3	Hua Hong Wuxi, HHGrace	Licensed
252	Forming method of embedded flash memory	Patent	55/90nm Eflash/ NOR platform	201410857351.4	Hua Hong Wuxi, HHGrace	Licensed
253	Manufacturing method of embedded flash memory	Patent	55/90nm Eflash/ NOR platform	201510052291.3	Hua Hong Wuxi, HHGrace	Licensed
254	Judging method of logic value of flash memory unit	Patent	55/90nm Eflash/ NOR platform	201510052267.X	Hua Hong Wuxi, HHGrace	Licensed

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255	Flash memory and its Manufacturing method and a method for monitoring the breakdown voltage of the tunneling oxide layer of flash memory	Patent	55/90nm Eflash/ NOR platform	201510490479.6	Hua Hong Wuxi, HHGrace	Licensed
256	Flash memory device test structure and its manufacturing method	Patent	55/90nm Eflash/ NOR platform	201510490477.7	Hua Hong Wuxi, HHGrace	Licensed
257	Manufacturing method and structure of flash memory	Patent	55/90nm Eflash/ NOR platform	201510690574.0	Hua Hong Wuxi, HHGrace	Licensed
258	Test method for reading the voltage of flash memory unit in a wafer level test and wafer level tests	Patent	55/90nm Eflash/ NOR platform	201510587195.9	Hua Hong Wuxi, HHGrace	Licensed
259	Method for reading the data of dual bit split gate flash memory	Patent	55/90nm Eflash/ NOR platform	201510939651.1	Hua Hong Wuxi, HHGrace	Licensed
260	Flash memory read operation calibration circuit	Patent	55/90nm Eflash/ NOR platform	201510465561.3	Hua Hong Wuxi, HHGrace	Licensed
261	a type of flash memory circuit and its' programming method	Patent	55/90nm Eflash/ NOR platform	201510427420.2	Hua Hong Wuxi, HHGrace	Licensed
262	Method for improving the height of the control grid of split gate flash memory	Patent	55/90nm Eflash/ NOR platform	201510491168.1	Hua Hong Wuxi, HHGrace	Licensed
263	Manufacturing method of flash memory devices	Patent	55/90nm Eflash/ NOR platform	201510490472.4	Hua Hong Wuxi, HHGrace	Licensed
264	Manufacturing method for solving the programming crosstalk failure of split gate flash memory	Patent	55/90nm Eflash/ NOR platform	201510490502.1	Hua Hong Wuxi, HHGrace	Licensed
265	Analysis method for failure of split gate flash memory with shared word line and its system	Patent	55/90nm Eflash/ NOR platform	201510579417.2	Hua Hong Wuxi, HHGrace	Licensed
266	Virtual ground flash memory circuit	Patent	55/90nm Eflash/ NOR platform	201510590602.1	Hua Hong Wuxi, HHGrace	Licensed
267	Method for checking the data retention of flash memory chip and its system	Patent	55/90nm Eflash/ NOR platform	201510490959.2	Hua Hong Wuxi, HHGrace	Licensed

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268	Method for improving the performance of flash memory devices	Patent	55/90nm Eflash/ NOR platform	201510888014.6	Hua Hong Wuxi, HHGrace	Licensed
269	Prediction method and screening method of flash memory lifetime	Patent	55/90nm Eflash/ NOR platform	201511003229.1	Hua Hong Wuxi, HHGrace	Licensed
270	Manufacturing method of a flash memory structure	Patent	55/90nm Eflash/ NOR platform	201510888011.2	Hua Hong Wuxi, HHGrace	Licensed
271	Manufacturing method of a flash memory structure	Patent	55/90nm Eflash/ NOR platform	201610052576.1	Hua Hong Wuxi, HHGrace	Licensed
272	Simulation control method and device for logic state of flash memory unit	Patent	55/90nm Eflash/ NOR platform	201610067372.5	Hua Hong Wuxi, HHGrace	Licensed
273	Test method of flash memory decoding circuit	Patent	55/90nm Eflash/ NOR platform	201610200685.3	Hua Hong Wuxi, HHGrace	Licensed
274	Manufacturing method of a flash memory structure	Patent	55/90nm Eflash/ NOR platform	201610033975.3	Hua Hong Wuxi, HHGrace	Licensed
275	Voltage distribution method and device for flash memory cell model	Patent	55/90nm Eflash/ NOR platform	201610165004.4	Hua Hong Wuxi, HHGrace	Licensed
276	Operation method of flash memory unit	Patent	55/90nm Eflash/ NOR platform	201610361512.X	Hua Hong Wuxi, HHGrace	Licensed
277	Manufacturing method of split gate flash memory	Patent	55/90nm Eflash/ NOR platform	201610016144.5	Hua Hong Wuxi, HHGrace	Licensed
278	Detection circuit and trimming method of embedded flash memory, embedded flash memory	Patent	55/90nm Eflash/ NOR platform	201610135967.X	Hua Hong Wuxi, HHGrace	Licensed
279	Programming voltage compensation circuit and flash memory	Patent	55/90nm Eflash/ NOR platform	201610633800.6	Hua Hong Wuxi, HHGrace	Licensed
280	Programming operation method for flash memory array	Patent	55/90nm Eflash/ NOR platform	201610364752.5	Hua Hong Wuxi, HHGrace	Licensed
281	Layout, mask and manufacturing method of split-gate flash memory device	Patent	55/90nm Eflash/ NOR platform	201610596507.7	Hua Hong Wuxi, HHGrace	Licensed
282	Flash memory and its forming method	Patent	55/90nm Eflash/ NOR platform	201610596401.7	Hua Hong Wuxi, HHGrace	Licensed
283	Flash memory device and its manufacturing method	Patent	55/90nm Eflash/ NOR platform	201610307728.8	Hua Hong Wuxi, HHGrace	Licensed

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284	Manufacturing method of flash memory device	Patent	55/90nm Eflash/ NOR platform	201610596395.5	Hua Hong Wuxi, HHGrace	Licensed
285	Manufacturing method of split-gate flash memory device	Patent	55/90nm Eflash/ NOR platform	201610596382.8	Hua Hong Wuxi, HHGrace	Licensed
286	Manufacturing method of split-gate flash memory device	Patent	55/90nm Eflash/ NOR platform	201610596096.1	Hua Hong Wuxi, HHGrace	Licensed
287	Manufacturing method of flash memory device	Patent	55/90nm Eflash/ NOR platform	201610264764.0	Hua Hong Wuxi, HHGrace	Licensed
288	Method for avoiding polysilicon etching residue and manufacturing method of split-gate flash memory	Patent	55/90nm Eflash/ NOR platform	201610596360.1	Hua Hong Wuxi, HHGrace	Licensed
289	Manufacturing method of split-gate flash memory device	Patent	55/90nm Eflash/ NOR platform	201610596487.3	Hua Hong Wuxi, HHGrace	Licensed
290	Forming method of flash memory	Patent	55/90nm Eflash/ NOR platform	201610655903.2	Hua Hong Wuxi, HHGrace	Licensed
291	Preparation method of floating gate	Patent	55/90nm Eflash/ NOR platform	201610884653.X	Hua Hong Wuxi, HHGrace	Licensed
292	Selection method of polysilicon dry etching process for embedded flash memory	Patent	55/90nm Eflash/ NOR platform	201610885898.4	Hua Hong Wuxi, HHGrace	Licensed
293	A process manufacturing method for solving the programming crosstalk failure of split-gate flash memory	Patent	55/90nm Eflash/ NOR platform	201710079379.3	Hua Hong Wuxi, HHGrace	Licensed
294	A process manufacturing method for obtaining stable floating gate tip of split-gate flash memory	Patent	55/90nm Eflash/ NOR platform	201610890802.3	Hua Hong Wuxi, HHGrace	Licensed
295	Manufacturing method of flash memory device	Patent	55/90nm Eflash/ NOR platform	201710007942.6	Hua Hong Wuxi, HHGrace	Licensed
296	A screening method for improving yield of embedded flash memory	Patent	55/90nm Eflash/ NOR platform	201610886002.4	Hua Hong Wuxi, HHGrace	Licensed
297	Forming method of flash memory	Patent	55/90nm Eflash/ NOR platform	201610828320.5	Hua Hong Wuxi, HHGrace	Licensed
298	Defect detection method, endurance test method and manufacturing method of flash memory	Patent	55/90nm Eflash/ NOR platform	201710241890.9	Hua Hong Wuxi, HHGrace	Licensed

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299	Manufacturing method of flash memory	Patent	55/90nm Eflash/ NOR platform	201710369457.3	Hua Hong Wuxi, HHGrace	Licensed
300	A comprehensive test design method for embedded flash memory of reduced pins	Patent	55/90nm Eflash/ NOR platform	200510111285.7	Hua Hong Wuxi, HHGrace	Licensed
301	A method for generating flash memory test vectors in real time	Patent	55/90nm Eflash/ NOR platform	200510111427.X	Hua Hong Wuxi, HHGrace	Licensed
302	A process and method for manufacturing the flash memory	Patent	55/90nm Eflash/ NOR platform	200610117431.1	Hua Hong Wuxi, HHGrace	Licensed
303	A method for manufacturing the discharge sharp corner of the floating gate	Patent	55/90nm Eflash/ NOR platform	200610117433.0	Hua Hong Wuxi, HHGrace	Licensed
304	An EEPROM manufacturing method that can increase the coupling voltage of the floating gate	Patent	55/90nm Eflash/ NOR platform	200610118441.7	Hua Hong Wuxi, HHGrace	Licensed
305	A method for forming the high voltage gate oxide and the tunnel oxide layer in the flash memory process	Patent	55/90nm Eflash/ NOR platform	200610117432.6	Hua Hong Wuxi, HHGrace	Licensed
306	A method for manufacturing the floating gate used in the split-gate flash memory	Patent	55/90nm Eflash/ NOR platform	200610116940.2	Hua Hong Wuxi, HHGrace	Licensed
307	A method for improving the discharge sharp angle in the manufacturing process of the SST flash memory	Patent	55/90nm Eflash/ NOR platform	200610147411.9	Hua Hong Wuxi, HHGrace	Licensed
308	An etching method for contact holes of a suspended type etching barrier layer of the embedded flash memory device	Patent	55/90nm Eflash/ NOR platform	200610119567.6	Hua Hong Wuxi, HHGrace	Licensed
309	A method for monitoring the erasing and writing performance of the flash memory	Patent	55/90nm Eflash/ NOR platform	200710094056.8	Hua Hong Wuxi, HHGrace	Licensed

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310	A method for manufacturing the floating gate of the flash memory	Patent	55/90nm Eflash/ NOR platform	200710094146.7	Hua Hong Wuxi, HHGrace	Licensed
311	A method for manufacturing the flash memory	Patent	55/90nm Eflash/ NOR platform	200810044004.4	Hua Hong Wuxi, HHGrace	Licensed
312	A method for manufacturing the flash memory	Patent	55/90nm Eflash/ NOR platform	200810044010.X	Hua Hong Wuxi, HHGrace	Licensed
313	A method for manufacturing the EEPROM floating gate and the floating gate manufactured thereof	Patent	55/90nm Eflash/ NOR platform	201010027282.6	Hua Hong Wuxi, HHGrace	Licensed
314	A memory integrated the flash memory and the EEPROM	Patent	55/90nm Eflash/ NOR platform	201110344321.X	Hua Hong Wuxi, HHGrace	Licensed
315	A floating gate electrically erasable read-only memory and its manufacturing method	Patent	55/90nm Eflash/ NOR platform	201210306772.9	Hua Hong Wuxi, HHGrace	Licensed
316	A dual-bit flash memory and its manufacturing and operation method	Patent	55/90nm Eflash/ NOR platform	201210356765.X	Hua Hong Wuxi, HHGrace	Licensed
317	A method for manufacturing the 5V depleted device used in the embedded flash memory	Patent	55/90nm Eflash/ NOR platform	201210567778.1	Hua Hong Wuxi, HHGrace	Licensed
318	A FLASH memory device	Patent	55/90nm Eflash/ NOR platform	201310013092.2	Hua Hong Wuxi, HHGrace	Licensed
319	A method for manufacturing the flash memory gate	Patent	55/90nm Eflash/ NOR platform	201310210343.6	Hua Hong Wuxi, HHGrace	Licensed
320	A bit line selection circuit of the flash memory	Patent	55/90nm Eflash/ NOR platform	201310299177.1	Hua Hong Wuxi, HHGrace	Licensed
321	A high voltage BCD device	Patent	90nm BCD platform	201710004113.2	Hua Hong Wuxi, HHGrace	Licensed
322	A Zener diode in the BCD process and its manufacturing method	Patent	90nm BCD platform	200710094278.X	Hua Hong Wuxi, HHGrace	Licensed
323	A method for manufacturing the self-aligned trench-type DMOS in the BCD process	Patent	90nm BCD platform	200910057451.8	Hua Hong Wuxi, HHGrace	Licensed
324	A process and method for manufacturing the self-aligned high voltage CMOS in the BCD process	Patent	90nm BCD platform	200910201967.5	Hua Hong Wuxi, HHGrace	Licensed

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325	A NLDMOS device in the BCD process and its manufacturing method	Patent	90nm BCD platform	201110283501.1	Hua Hong Wuxi, HHGrace	Licensed
326	A process and method for manufacturing the isolation structure in the ultra-high voltage BCD process	Patent	90nm BCD platform	201210461606.6	Hua Hong Wuxi, HHGrace	Licensed
327	An isolated Zener diode in the BCD process and its manufacturing method	Patent	90nm BCD platform	201310058886.0	Hua Hong Wuxi, HHGrace	Licensed
328	An isolated lateral Zener diode in the BCD process and its manufacturing method	Patent	90nm BCD platform	201310064778.4	Hua Hong Wuxi, HHGrace	Licensed
329	A vertical bipolar transistor in the BCD process	Patent	90nm BCD platform	201310652828.0	Hua Hong Wuxi, HHGrace	Licensed
330	A vertical bipolar transistor in the BCD process	Patent	90nm BCD platform	201310652819.1	Hua Hong Wuxi, HHGrace	Licensed
331	A vertical NPN device in the BCD process and its manufacturing method	Patent	90nm BCD platform	201310627726.3	Hua Hong Wuxi, HHGrace	Licensed
332	A process for simultaneously realizing the DDMOS drift region and the LDMOS drift region	Patent	90nm BCD platform	201010271195.5	Hua Hong Wuxi, HHGrace	Licensed
333	A high voltage LDMOS device	Patent	90nm BCD platform	201110035585.7	Hua Hong Wuxi, HHGrace	Licensed
334	A temperature measurement method of the semiconductor device manufactured in the LDMOS process	Patent	90nm BCD platform	201210413632.1	Hua Hong Wuxi, HHGrace	Licensed
335	A photolithography and overlay method and a method for improving the breakdown stability of the LDMOS device	Patent	90nm BCD platform	201210143437.1	Hua Hong Wuxi, HHGrace	Licensed
336	A LDMOS field effect transistor and its manufacturing method	Patent	90nm BCD platform	201210165384.3	Hua Hong Wuxi, HHGrace	Licensed
337	A LDMOS device and its manufacturing method	Patent	90nm BCD platform	201410262236.2	Hua Hong Wuxi, HHGrace	Licensed

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338	An RF power LDMOS device and its manufacturing method	Patent	90nm BCD platform	201410315116.4	Hua Hong Wuxi, HHGrace	Licensed
339	An isolated LDMOS device and its manufacturing method	Patent	90nm BCD platform	201410652904.2	Hua Hong Wuxi, HHGrace	Licensed
340	An RF power LDMOS device and its manufacturing method	Patent	90nm BCD platform	201410632526.1	Hua Hong Wuxi, HHGrace	Licensed
341	A NLDMOS device and its manufacturing method	Patent	90nm BCD platform	201410524910.X	Hua Hong Wuxi, HHGrace	Licensed
342	A NLDMOS device and its manufacturing method	Patent	90nm BCD platform	201410520214.1	Hua Hong Wuxi, HHGrace	Licensed
343	A method for manufacturing the RF power LDMOS device	Patent	90nm BCD platform	201410837468.6	Hua Hong Wuxi, HHGrace	Licensed
344	An RF power LDMOS device and its manufacturing method	Patent	90nm BCD platform	201410842286.8	Hua Hong Wuxi, HHGrace	Licensed
345	An isolated NLDMOS device and its manufacturing method	Patent	90nm BCD platform	201510033372.9	Hua Hong Wuxi, HHGrace	Licensed
346	An RF power LDMOS device and its manufacturing method	Patent	90nm BCD platform	201510080701.5	Hua Hong Wuxi, HHGrace	Licensed
347	A N-type LDMOS device and its manufacturing method	Patent	90nm BCD platform	201510080729.9	Hua Hong Wuxi, HHGrace	Licensed
348	An isolated NLDMOS device	Patent	90nm BCD platform	201510048208.5	Hua Hong Wuxi, HHGrace	Licensed
349	A high-voltage LDMOS device used for boosting source-drain voltage and its manufacturing method	Patent	90nm BCD platform	201510080741.X	Hua Hong Wuxi, HHGrace	Licensed
350	A method for manufacturing the NLDMOS device	Patent	90nm BCD platform	201510068404.9	Hua Hong Wuxi, HHGrace	Licensed
351	Isolated NLDMOS device and its manufacturing method	Patent	90nm BCD platform	201510048207.0	Hua Hong Wuxi, HHGrace	Licensed
352	Isolated NLDMOS device and its manufacturing method	Patent	90nm BCD platform	201510048190.9	Hua Hong Wuxi, HHGrace	Licensed
353	N-type LDMOS device with slotted-gate structure and process method	Patent	90nm BCD platform	201510107046.8	Hua Hong Wuxi, HHGrace	Licensed
354	N-type LDMOS device and process method	Patent	90nm BCD platform	201510107015.2	Hua Hong Wuxi, HHGrace	Licensed
355	RF LDMOS device and its manufacturing method	Patent	90nm BCD platform	201510315157.8	Hua Hong Wuxi, HHGrace	Licensed
356	Ultra-high voltage LDMOS device structure	Patent	90nm BCD platform	201510507290.3	Hua Hong Wuxi, HHGrace	Licensed

S/N	Content or Name	Category	Platform	Patent, Instrument, IP No.	Right Holders	Remark
357	NLDMOS device and its manufacturing method	Patent	90nm BCD platform	201510270359.5	Hua Hong Wuxi, HHGrace	Licensed
358	Process method for buried layers of LDMOS device	Patent	90nm BCD platform	201510607086.9	Hua Hong Wuxi, HHGrace	Licensed
359	NLDMOS device and its manufacturing method	Patent	90nm BCD platform	201510783214.5	Hua Hong Wuxi, HHGrace	Licensed
360	NLDMOS device and its manufacturing method	Patent	90nm BCD platform	201510971911.3	Hua Hong Wuxi, HHGrace	Licensed
361	High-voltage LDMOS device and process methods	Patent	90nm BCD platform	201610242954.2	Hua Hong Wuxi, HHGrace	Licensed
362	High-voltage N-type LDMOS device and process methods	Patent	90nm BCD platform	201610269875.0	Hua Hong Wuxi, HHGrace	Licensed
363	High-voltage LDMOS device and process methods	Patent	90nm BCD platform	201610242892.5	Hua Hong Wuxi, HHGrace	Licensed
364	LDMOS device and its manufacturing method	Patent	90nm BCD platform	201610674970.9	Hua Hong Wuxi, HHGrace	Licensed
365	Manufacturing method of LDMOS	Patent	90nm BCD platform	201610671726.7	Hua Hong Wuxi, HHGrace	Licensed
366	PLDMOS device and its manufacturing method	Patent	90nm BCD platform	201710003959.4	Hua Hong Wuxi, HHGrace	Licensed
367	Integrated structure of LDMOS and JFET and its manufacturing method	Patent	90nm BCD platform	201610063990.2	Hua Hong Wuxi, HHGrace	Licensed
368	PLDMOS for ESD protection	Patent	90nm BCD platform	201610064013.4	Hua Hong Wuxi, HHGrace	Licensed
369	A high-voltage LDMOS electrostatic protection circuit structure	Patent	90nm BCD platform	201610470793.2	Hua Hong Wuxi, HHGrace	Licensed
370	LDMOS device	Patent	90nm BCD platform	201710904201.8	Hua Hong Wuxi, HHGrace	Licensed
371	LDMOS transistor structure and preparation method	Patent	90nm BCD platform	200810043765.8	Hua Hong Wuxi, HHGrace	Licensed
372	LDMOS transistor and its preparation method	Patent	90nm BCD platform	200810043767.7	Hua Hong Wuxi, HHGrace	Licensed
373	A method to increase the crash voltage of LDMOS device	Patent	90nm BCD platform	200910057159.6	Hua Hong Wuxi, HHGrace	Licensed
374	Manufacturing method of LDMOS	Patent	90nm BCD platform	200910057474.9	Hua Hong Wuxi, HHGrace	Licensed
375	LDMOS and its manufacturing method	Patent	90nm BCD platform	200910201753.8	Hua Hong Wuxi, HHGrace	Licensed

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376	LDMOS and its manufacturing method	Patent	90nm BCD platform	200910201890.1	Hua Hong Wuxi, HHGrace	Licensed
377	Source area of LDMOS device and its manufacturing method	Patent	90nm BCD platform	201010027292.X	Hua Hong Wuxi, HHGrace	Licensed
378	LDMOS and its manufacturing method	Patent	90nm BCD platform	201010027277.5	Hua Hong Wuxi, HHGrace	Licensed
379	Manufacturing method of RF LDMOS device	Patent	90nm BCD platform	201010154891.8	Hua Hong Wuxi, HHGrace	Licensed
380	Method to improve the operating frequency of RF LDMOS	Patent	90nm BCD platform	201010287175.7	Hua Hong Wuxi, HHGrace	Licensed
381	Method for reducing contact post resistance of source terminal in radio frequency LDMOS device	Patent	90nm BCD platform	201010291471.4	Hua Hong Wuxi, HHGrace	Licensed
382	Super junction LDMOS device and its manufacturing method	Patent	90nm BCD platform	201010265250.X	Hua Hong Wuxi, HHGrace	Licensed
383	Manufacturing method of polysilicon P-type sink in N-type radio frequency LDMOS	Patent	90nm BCD platform	201010265249.7	Hua Hong Wuxi, HHGrace	Licensed
384	Manufacturing method of N-type radio frequency LDMOS	Patent	90nm BCD platform	201010257297.1	Hua Hong Wuxi, HHGrace	Licensed
385	Implementation method of metal source-backed via in radio frequency LDMOS device	Patent	90nm BCD platform	201010528076.3	Hua Hong Wuxi, HHGrace	Licensed
386	High-voltage LDMOS device and its manufacturing method	Patent	90nm BCD platform	201010595992.9	Hua Hong Wuxi, HHGrace	Licensed
387	Preparation method of double gate LDMOS with self-aligned metal silicide process	Patent	90nm BCD platform	201010595285.X	Hua Hong Wuxi, HHGrace	Licensed
388	Manufacturing method of isolated LDMOS	Patent	90nm BCD platform	201110009456.0	Hua Hong Wuxi, HHGrace	Licensed
389	High-voltage LDMOS device and its manufacturing method	Patent	90nm BCD platform	201110022981.6	Hua Hong Wuxi, HHGrace	Licensed
390	NLDMOS device and manufacturing method in BCD process	Patent	90nm BCD platform	201110283501.1	Hua Hong Wuxi, HHGrace	Licensed

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391	Manufacturing method of high voltage P-type LDMOS	Patent	90nm BCD platform	201110282838.0	Hua Hong Wuxi, HHGrace	Licensed
392	Manufacturing method of high-voltage isolated N-type LDMOS device	Patent	90nm BCD platform	201110305290.7	Hua Hong Wuxi, HHGrace	Licensed
393	Non-buried double deep N-well high-voltage isolated N-type LDMOS and manufacturing method	Patent	90nm BCD platform	201110258142.4	Hua Hong Wuxi, HHGrace	Licensed
394	Layout structure of LDMOS array	Patent	90nm BCD platform	201110297918.3	Hua Hong Wuxi, HHGrace	Licensed
395	High-voltage P-type LDMOS structure and its manufacturing method	Patent	90nm BCD platform	201110353370.X	Hua Hong Wuxi, HHGrace	Licensed
396	High-voltage isolated N-type LDMOS device and its manufacturing method	Patent	90nm BCD platform	201110374610.4	Hua Hong Wuxi, HHGrace	Licensed
397	LDMOS transistor manufacturing method	Patent	90nm BCD platform	201110407803.5	Hua Hong Wuxi, HHGrace	Licensed
398	The method of improving the breakdown voltage of NLDMOS	Patent	90nm BCD platform	201110376868.8	Hua Hong Wuxi, HHGrace	Licensed
399	A Current Sampling Circuit Realized by LDMOS Devices	Patent	90nm BCD platform	201110342681.6	Hua Hong Wuxi, HHGrace	Licensed
400	Ultra-high voltage LDMOS device structure and manufacturing method	Patent	90nm BCD platform	201110441110.8	Hua Hong Wuxi, HHGrace	Licensed
401	P-type LDMOS device and its manufacturing method	Patent	90nm BCD platform	201210236376.3	Hua Hong Wuxi, HHGrace	Licensed
402	Isolated N-type LDMOS device and its manufacturing method	Patent	90nm BCD platform	201210236375.9	Hua Hong Wuxi, HHGrace	Licensed
403	Manufacturing method of ultra-high voltage LDMOS process	Patent	90nm BCD platform	201110344330.9	Hua Hong Wuxi, HHGrace	Licensed
404	A process method for forming RF LDMOS gate metal silicide	Patent	90nm BCD platform	201110348908.8	Hua Hong Wuxi, HHGrace	Licensed
405	Process method for improving RF LDMOS gate metal silicide formation	Patent	90nm BCD platform	201110350556.X	Hua Hong Wuxi, HHGrace	Licensed

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406	Radio frequency LDMOS device with bimetal silicide and the manufacturing method	Patent	90nm BCD platform	201110396915.5	Hua Hong Wuxi, HHGrace	Licensed
407	A kind of NLDMOS device and its manufacturing method	Patent	90nm BCD platform	201210005120.1	Hua Hong Wuxi, HHGrace	Licensed
408	NLDMOS structure compatible with 5V CMOS technology and its manufacturing method	Patent	90nm BCD platform	201210008147.6	Hua Hong Wuxi, HHGrace	Licensed
409	Field oxide layer isolation structure of LDMOS transistor and the preparation method	Patent	90nm BCD platform	201210088429.1	Hua Hong Wuxi, HHGrace	Licensed
410	High breakdown voltage P-type LDMOS device and the manufacturing method	Patent	90nm BCD platform	201210174551.0	Hua Hong Wuxi, HHGrace	Licensed
411	High-voltage P-type LDMOS device and the manufacturing method	Patent	90nm BCD platform	201210174552.5	Hua Hong Wuxi, HHGrace	Licensed
412	Manufacturing technology of P-type LDMOS surface channel device	Patent	90nm BCD platform	201210153599.3	Hua Hong Wuxi, HHGrace	Licensed
413	A simulation method of LDMOS array	Patent	90nm BCD platform	201210181570.6	Hua Hong Wuxi, HHGrace	Licensed
414	LDMOS transistor and the manufacturing method	Patent	90nm BCD platform	201210162451.6	Hua Hong Wuxi, HHGrace	Licensed
415	Manufacturing method of low voltage LDMOS	Patent	90nm BCD platform	201210182990.6	Hua Hong Wuxi, HHGrace	Licensed
416	Manufacturing method of PLDMOS	Patent	90nm BCD platform	201210152696.0	Hua Hong Wuxi, HHGrace	Licensed
417	A high-voltage NLDMOS electrostatic protection structure	Patent	90nm BCD platform	201210152866.5	Hua Hong Wuxi, HHGrace	Licensed
418	A monitoring structure for asymmetric LDMOS process deviation and its manufacturing method	Patent	90nm BCD platform	201210169563.4	Hua Hong Wuxi, HHGrace	Licensed
419	RF LDMOS device and the manufacturing method	Patent	90nm BCD platform	201210287206.8	Hua Hong Wuxi, HHGrace	Licensed
420	RF LDMOS device and the manufacturing method	Patent	90nm BCD platform	201210188969.7	Hua Hong Wuxi, HHGrace	Licensed

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421	LDMOS device in stepped drift region and its manufacturing method	Patent	90nm BCD platform	201210264945.5	Hua Hong Wuxi, HHGrace	Licensed
422	LDMOS device and its manufacturing method	Patent	90nm BCD platform	201210489048.4	Hua Hong Wuxi, HHGrace	Licensed
423	LDMOS device and its manufacturing method	Patent	90nm BCD platform	201210297088.9	Hua Hong Wuxi, HHGrace	Licensed
424	RF LDMOS device and the manufacturing method	Patent	90nm BCD platform	201210287203.4	Hua Hong Wuxi, HHGrace	Licensed
425	RF LDMOS device and the manufacturing method	Patent	90nm BCD platform	201210287201.5	Hua Hong Wuxi, HHGrace	Licensed
426	LDMOS device and its manufacturing method	Patent	90nm BCD platform	201210297126.0	Hua Hong Wuxi, HHGrace	Licensed
427	Radio frequency LDMOS device and its manufacturing method	Patent	90nm BCD platform	201210315670.3	Hua Hong Wuxi, HHGrace	Licensed
428	Etching method of deep trench in RELDMOS isolation dielectric layer	Patent	90nm BCD platform	201210281659.X	Hua Hong Wuxi, HHGrace	Licensed
429	High voltage NLDMOS structure for electrostatic protection	Patent	90nm BCD platform	201210240391.5	Hua Hong Wuxi, HHGrace	Licensed
430	NLDMOS device and the manufacturing method	Patent	90nm BCD platform	201210325764.9	Hua Hong Wuxi, HHGrace	Licensed
431	Process method for improving leakage current in P-type LDMOS	Patent	90nm BCD platform	201210380594.4	Hua Hong Wuxi, HHGrace	Licensed
432	Method for integrating SONOS device and LDMOS device in CMOS technology	Patent	90nm BCD platform	201210306805.X	Hua Hong Wuxi, HHGrace	Licensed
433	Radio frequency LDMOS device and the manufacturing method	Patent	90nm BCD platform	201210410422.7	Hua Hong Wuxi, HHGrace	Licensed
434	Manufacturing method for improving in-plane uniformity of P-type LDMOS surface channel device	Patent	90nm BCD platform	201210305990.0	Hua Hong Wuxi, HHGrace	Licensed
435	LDMOS composite tube with surface junction field effect transistor	Patent	90nm BCD platform	201210454051.2	Hua Hong Wuxi, HHGrace	Licensed

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436	LDMOS transistor with lateral concentration gradient in drift region and its manufacturing method	Patent	90nm BCD platform	201210437584.X	Hua Hong Wuxi, HHGrace	Licensed
437	A kind of preparation process method of LDMOS	Patent	90nm BCD platform	201210417414.5	Hua Hong Wuxi, HHGrace	Licensed
438	Layout structure and method for reducing peak electric field of LDMOS device	Patent	90nm BCD platform	201210460902.4	Hua Hong Wuxi, HHGrace	Licensed
439	Radio frequency LDMOS device and its manufacturing method	Patent	90nm BCD platform	201210512717.5	Hua Hong Wuxi, HHGrace	Licensed
440	P-type LDMOS device trench and the process method	Patent	90nm BCD platform	201210553008.1	Hua Hong Wuxi, HHGrace	Licensed
441	P-type LDMOS device trench and the fabrication method	Patent	90nm BCD platform	201210544308.3	Hua Hong Wuxi, HHGrace	Licensed
442	A kind of radio frequency LDMOS device and its manufacturing method	Patent	90nm BCD platform	201210513673.8	Hua Hong Wuxi, HHGrace	Licensed
443	LDMOS device used in radio frequency field and its manufacturing method	Patent	90nm BCD platform	201210512690.X	Hua Hong Wuxi, HHGrace	Licensed
444	Radio frequency LDMOS device and its manufacturing method	Patent	90nm BCD platform	201210521428.1	Hua Hong Wuxi, HHGrace	Licensed
445	N-channel radio frequency LDMOS device and manufacturing method	Patent	90nm BCD platform	201210536911.7	Hua Hong Wuxi, HHGrace	Licensed
446	A kind of radio frequency LDMOS device and its manufacturing method	Patent	90nm BCD platform	201310003606.6	Hua Hong Wuxi, HHGrace	Licensed
447	NLDMOS device and its manufacturing method	Patent	90nm BCD platform	201310088540.5	Hua Hong Wuxi, HHGrace	Licensed
448	Radio frequency N-type LDMOS device and its manufacturing method	Patent	90nm BCD platform	201310067290.7	Hua Hong Wuxi, HHGrace	Licensed
449	Edge isolation structure of radio frequency LDMOS device and the manufacturing method	Patent	90nm BCD platform	201310187583.9	Hua Hong Wuxi, HHGrace	Licensed

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450	Manufacturing method of radio frequency LDMOS device	Patent	90nm BCD platform	201310365031.2	Hua Hong Wuxi, HHGrace	Licensed
451	Radio frequency LDMOS device and its manufacturing method	Patent	90nm BCD platform	201310211950.4	Hua Hong Wuxi, HHGrace	Licensed
452	Radio frequency LDMOS device and its manufacturing method	Patent	90nm BCD platform	201310227240.0	Hua Hong Wuxi, HHGrace	Licensed
453	Radio frequency LDMOS device and its manufacturing method	Patent	90nm BCD platform	201310244707.2	Hua Hong Wuxi, HHGrace	Licensed
454	Radio frequency LDMOS device and its manufacturing method	Patent	90nm BCD platform	201310365073.6	Hua Hong Wuxi, HHGrace	Licensed
455	Radio frequency LDMOS device and its manufacturing method	Patent	90nm BCD platform	201310374024.9	Hua Hong Wuxi, HHGrace	Licensed
456	A kind of radio frequency LDMOS device and its manufacturing method	Patent	90nm BCD platform	201310485697.1	Hua Hong Wuxi, HHGrace	Licensed
457	Radio frequency LDMOS device and process method	Patent	90nm BCD platform	201310559718.X	Hua Hong Wuxi, HHGrace	Licensed
458	Radio frequency LDMOS device and process method	Patent	90nm BCD platform	201310564195.8	Hua Hong Wuxi, HHGrace	Licensed
459	A kind of radio frequency LDMOS device and its manufacturing method	Patent	90nm BCD platform	201310601844.7	Hua Hong Wuxi, HHGrace	Licensed
460	LDMOS device and the manufacturing method	Patent	90nm BCD platform	201310542163.8	Hua Hong Wuxi, HHGrace	Licensed
461	A kind of high isolation n-type LDMOS device and its manufacturing method	Patent	90nm BCD platform	201310641803.0	Hua Hong Wuxi, HHGrace	Licensed
462	Radio frequency LDMOS device and process method	Patent	90nm BCD platform	201310705324.0	Hua Hong Wuxi, HHGrace	Licensed
463	High-voltage LDMOS self-triggered electrostatic protection structure	Patent	90nm BCD platform	201310608722.0	Hua Hong Wuxi, HHGrace	Licensed
464	A kind of n-type LDMOS device and its manufacturing method	Patent	90nm BCD platform	201310643175.X	Hua Hong Wuxi, HHGrace	Licensed

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465	LDMOS device and the manufacturing method	Patent	90nm BCD platform	201310574832.X	Hua Hong Wuxi, HHGrace	Licensed
466	A current sampling circuit realized by LDMOS device	Patent	90nm BCD platform	201310695469.7	Hua Hong Wuxi, HHGrace	Licensed
467	Radio frequency LDMOS device and process method	Patent	90nm BCD platform	201310726987.0	Hua Hong Wuxi, HHGrace	Licensed
468	A radio frequency LDMOS device to improve leakage issue and its manufacturing method	Patent	90nm BCD platform	201310671894.2	Hua Hong Wuxi, HHGrace	Licensed
469	NLDMOS device	Patent	90nm BCD platform	201310652810.0	Hua Hong Wuxi, HHGrace	Licensed
470	Radio frequency LDMOS device and its manufacturing method	Patent	90nm BCD platform	201310655616.8	Hua Hong Wuxi, HHGrace	Licensed
471	Radio frequency LDMOS device and the manufacturing method	Patent	90nm BCD platform	201310659228.7	Hua Hong Wuxi, HHGrace	Licensed
472	RFLDMOS device and its manufacturing method	Patent	90nm BCD platform	201410581747.0	Hua Hong Wuxi, HHGrace	Licensed
473	Fabrication method and structure of RFLDMOS	Patent	90nm BCD platform	201610190736.9	Hua Hong Wuxi, HHGrace	Licensed
474	Process method for stabilizing gate topography in RFLDMOS process	Patent	90nm BCD platform	201610064060.9	Hua Hong Wuxi, HHGrace	Licensed
475	Resistance test structure and method of tungsten sink layer of RFLDMOS	Patent	90nm BCD platform	201610671709.3	Hua Hong Wuxi, HHGrace	Licensed
476	Process method for improving breakdown voltage of RFLDMOS	Patent	90nm BCD platform	201610674993.X	Hua Hong Wuxi, HHGrace	Licensed
477	Preparation method of gate in RFLDMOS device	Patent	90nm BCD platform	201010274275.6	Hua Hong Wuxi, HHGrace	Licensed
478	Fabrication method of thick isolation dielectric layer structure of RFLDMOS	Patent	90nm BCD platform	201110388422.7	Hua Hong Wuxi, HHGrace	Licensed
479	Fabrication method of forming thick silicon oxide isolation layer in RFLDMOS	Patent	90nm BCD platform	201210152488.0	Hua Hong Wuxi, HHGrace	Licensed

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480	ESD device and the manufacturing method in RFLDMOS technology	Patent	90nm BCD platform	201210152856.1	Hua Hong Wuxi, HHGrace	Licensed
481	Electrical connection structure and manufacturing method for connecting well and substrate in RFLDMOS	Patent	90nm BCD platform	201210187195.6	Hua Hong Wuxi, HHGrace	Licensed
482	ESD device in RFLDMOS technology and its manufacturing method	Patent	90nm BCD platform	201210181338.2	Hua Hong Wuxi, HHGrace	Licensed
483	Structure and fabrication method of RFLDMOS thick field oxygen isolation dielectric layer	Patent	90nm BCD platform	201210297005.6	Hua Hong Wuxi, HHGrace	Licensed
484	RFLDMOS device and its manufacturing method	Patent	90nm BCD platform	201210445971.8	Hua Hong Wuxi, HHGrace	Licensed
485	RFLDMOS device and its manufacturing method	Patent	90nm BCD platform	201310365072.1	Hua Hong Wuxi, HHGrace	Licensed
486	Fabrication method of grid field plate in RFLDMOS	Patent	90nm BCD platform	201310484710.1	Hua Hong Wuxi, HHGrace	Licensed
487	Manufacturing method of RFLDMOS device	Patent	90nm BCD platform	201310500029.1	Hua Hong Wuxi, HHGrace	Licensed
488	Internal matching capacitance of RFLDMOS device and manufacturing method	Patent	90nm BCD platform	201310589126.2	Hua Hong Wuxi, HHGrace	Licensed
489	MOS capacitor integrated structure and manufacturing method with different capacitance densities in RFLDMOS technology	Patent	90nm BCD platform	201310589766.3	Hua Hong Wuxi, HHGrace	Licensed
490	Microphone MEMS thinning process method	Patent	BG/BM technology	201410268499.4	Hua Hong Wuxi, HHGrace	Licensed
491	The ring removal method for taiko thinning technology	Patent	BG/BM technology	201410363960.4	Hua Hong Wuxi, HHGrace	Licensed
492	A method of thinning through silicon vias	Patent	BG/BM technology	201510547822.6	Hua Hong Wuxi, HHGrace	Licensed
493	The circumcision process of taiko thinning technology	Patent	BG/BM technology	201510977067.5	Hua Hong Wuxi, HHGrace	Licensed
494	A method of blunting sharp corners	Patent	BG/BM technology	201110352080.3	Hua Hong Wuxi, HHGrace	Licensed

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495	Methods for precise control of wafer thickness reduction	Patent	BG/BM technology	201210468683.4	Hua Hong Wuxi, HHGrace	Licensed
496	HW_65nm_Logic_Low Power_1.2V/2.5V_ HHGrace_1P8M Cu (LO65NLPU4) Topological Layout Rules	Platform instrument	65/55nm Logic/RFCOMS platform	WXDM-LO65NLPU4-TLR-1868	Hua Hong Wuxi, HHGrace	Licensed
497	HG_55nm_Logic_Low Power_1.2V/2.5V_ HHGrace_1P8M Cu (LO55NLPU4) Electrical Design Rules version	Platform instrument	65/55nm Logic/RFCOMS platform	DM-LO55NLPU4-EDR-1869	Hua Hong Wuxi, HHGrace	Licensed
498	HG_65nm_Logic_Low Power_1.2V/2.5V_1P8M Cu (LO65NLPU4) Device Formation	Platform instrument	65/55nm Logic/RFCOMS platform	DM-LO65NLPU4-DEF-1867	Hua Hong Wuxi, HHGrace	Licensed
499	HG_55nm_Logic_Low Power_1.2V/2.5V_ HHGrace_1P8M Cu (LO55NLPU4) SPICE Model Design Manual	Platform instrument	65/55nm Logic/RFCOMS platform	DM-LO55NLPU4-SPI-1874	Hua Hong Wuxi, HHGrace	Licensed
500	HG_65nm_Logic_Low Power_1.2V/2.5V_ HHGrace_1P8M Cu (LO65NLPU4) ESD and Latchup Design Guideline	Platform instrument	65/55nm Logic/RFCOMS platform	DM-LO65NLPU4-ESD-1902	Hua Hong Wuxi, HHGrace	Licensed
501	HG_65nm_Logic_Low Power_1.2V/2.5V_ HHGrace_1P8M Cu (LO65NLPU4) Brief Process Flow	Platform instrument	65/55nm Logic/RFCOMS platform	DM-LO65NLPU4-POR-1876	Hua Hong Wuxi, HHGrace	Licensed
502	HHGrace_55nm_Logic/ Analog_Low Power_1.2V/2.5V_1P8M Cu_Mask Tooling Table	Platform instrument	65/55nm Logic/RFCOMS platform	DM-LO55NLPU4-MTT-1921	Hua Hong Wuxi, HHGrace	Licensed
503	HW_55nm_Logic_Low Power_1.2V/2.5V_ HHGrace_1P8M Cu (LO55NLPU4) Mask Specification	Platform instrument	65/55nm Logic/RFCOMS platform	WXDM-LO55NLPU4-MSS-1955	Hua Hong Wuxi, HHGrace	Licensed

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504	HW_65nm_Logic_Low Power_1.2V/2.5V_ HHGrace_1P8M Cu (LO65NLPU4) LDMOS Topological Layout Rules	Platform instrument	65/55nm Logic/RFCOMS platform	WXDM-LO65NLPU4-TLR-1996	Hua Hong Wuxi, HHGrace	Licensed
505	HW_55nm_Embedded NORD Flash_Low Power_1.2V/2.5V/5V_ HHGrace_4P8M Cu (FL55NLPU0) Special Topological Layout Rules	Platform instrument	55/90nm Eflash/NOR platform	WXDM-FL55NLPU0-TLR-1942	Hua Hong Wuxi, HHGrace	Licensed
506	HW_55nm_Embedded NORD Flash_Low Power_1.2V/2.5V/5V_ HHGrace_4P8M Cu (FL55NLPU0) Topological Layout Rules	Platform instrument	55/90nm Eflash/NOR platform	WXDM-FL55NLPU0-TLR-1930	Hua Hong Wuxi, HHGrace	Licensed
507	HW_55nm_Embedded NORD Flash_Low Power_1.2V/2.5V/5V_4P8M Cu (FL55NLPU0) Electrical Design Rules	Platform instrument	55/90nm Eflash/NOR platform	WXDM-FL55NLPU0-EDR-1932	Hua Hong Wuxi, HHGrace	Licensed
508	HW_55nm_Embedded NORD Flash_Low Power_1.2V/2.5V/5V_ HHGrace_4P8M Cu (FL55NLPU0) Device Formation	Platform instrument	55/90nm Eflash/NOR platform	WXDM-FL55NLPU0-DEF-1931	Hua Hong Wuxi, HHGrace	Licensed
509	HW_55nm_Embedded NORD Flash_Low Power_1.2V/2.5V/5V_ HHGrace_4P8M Cu (FL55NLPU0) ESD and Latchup Design Guideline	Platform instrument	55/90nm Eflash/NOR platform	WXDM-FL55NLPU0-ESD-1943	Hua Hong Wuxi, HHGrace	Licensed
510	HW_55nm_Embedded NORD Flash_Low Power_1.2V/2.5V/5V_ HHGrace_4P8M Cu (FL55NLPU0) SPICE Model Design Manual	Platform instrument	55/90nm Eflash/NOR platform	WXDM-FL55NLPU0-SPI-1936	Hua Hong Wuxi, HHGrace	Licensed

S/N	Content or Name	Category	Platform	Patent, Instrument, IP No.	Right Holders	Remark
511	HW_90nm_Analog_Low Power_1.5V/3.3V_FAB7 (AL090LPF07) Topological Layout Rules	Platform instrument	55/90nm Eflash/NOR platform	WXDM-AL090LPF07-TLR-1963	Hua Hong Wuxi, HHGrace	Licensed
512	HW_90nm_Analog_Low Power_1.5V/3.3V_FAB7 (AL090LPF07) Electrical Design Rules	Platform instrument	55/90nm Eflash/NOR platform	WXDM-AL090LPF07-EDR-1965	Hua Hong Wuxi, HHGrace	Licensed
513	HW_90nm_Analog_Low Power_1.5V/3.3V_FAB7 (AL090LPF07) Device Formation version0.1	Platform instrument	55/90nm Eflash/NOR platform	WXDM-AL090LPF07-DEF-1964	Hua Hong Wuxi, HHGrace	Licensed
514	HW_90nm_Analog_Low Power_1.5V/3.3V_FAB7 (AL090LPF07) SPICE Model Design Manual	Platform instrument	55/90nm Eflash/NOR platform	WXDM-AL090LPF07-SPI-1968	Hua Hong Wuxi, HHGrace	Licensed
515	HW_90nm_Embedded NORD Flash shrink cell_G2E1(0.075um^2) & G1E1(0.1um^2) Low Power_1.5V/5V_HHGrace_ FAB7 (FS090E1L57) ESD and Latchup Design Guideline	Platform instrument	55/90nm Eflash/NOR platform	WXDM-FS090E1L57-ESD-1967	Hua Hong Wuxi, HHGrace	Licensed
516	WXDM_Logic&Flash_90nm_ For_FAB7_Dummy_Pattern_ Filling_Rule_V0.10	Platform instrument	55/90nm Eflash/NOR platform	WXDM-FS090E1L57-DFI-1972	Hua Hong Wuxi, HHGrace	Licensed
517	HW_90nm_Embedded NORD Flash shrink cell_G2E1(0.075um^2) & G1E1(0.1um^2) Low Power_1.5V/5V_HHGrace_ FAB7 (FS090E1L57) Topological Layout Rules(PLUS Smart Tooling)	Platform instrument	55/90nm Eflash/NOR platform	WXDM-FS090E1L57-TLR-1913	Hua Hong Wuxi, HHGrace	Licensed

S/N	Content or Name	Category	Platform	Patent, Instrument, IP No.	Right Holders	Remark
518	HG_90nm_Embedded NORD Flash shrink cell_G2E1(0.075um^2) & G1E1(0.1um^2) Low Power_1.5V/5V_HHGrace_ FAB7 (FS090E1L57) Topological Layout Rules	Platform instrument	55/90nm Eflash/NOR platform	DM-FS090E1L57-TLR-1910	Hua Hong Wuxi, HHGrace	Licensed
519	HG_90nm_Embedded NORD Flash shrink cell_G2E1(0.075um^2) & G1E1(0.1um^2) Low Power_1.5V/5V_HHGrace_ FAB7 (FS090E1L57) Special Topological Layout Rules(Internal Use)	Platform instrument	55/90nm Eflash/NOR platform	DM-FS090E1L57-TLR-1912	Hua Hong Wuxi, HHGrace	Licensed
520	HG_90nm_Embedded NORD Flash shrink cell_G2E1(0.075um^2) & G1E1(0.1um^2) Low Power_1.5V/5V_HHGrace_ FAB7 (FS090E1L57) Electrical Design Rules	Platform instrument	55/90nm Eflash/NOR platform	DM-FS090E1L57-EDR-1909	Hua Hong Wuxi, HHGrace	Licensed
521	HG_90nm_Embedded NORD Flash shrink cell_G2E1(0.075um^2) & G1E1(0.1um^2) Low Power_1.5V/5V_HHGrace_ FAB7 (FS090E1L57) Device Formation	Platform instrument	55/90nm Eflash/NOR platform	DM-FS090E1L57-DEF-1908	Hua Hong Wuxi, HHGrace	Licensed
522	HG_90nm_Embedded NORD Flash shrink cell_G2E1(0.075um^2) & G1E1(0.1um^2) Low Power_1.5V/5V_HHGrace_ FAB7 (FS090E1L57) SPICE Model Design Manual	Platform instrument	55/90nm Eflash/NOR platform	DM-FS090E1L57-SPI-1919	Hua Hong Wuxi, HHGrace	Licensed

S/N	Content or Name	Category	Platform	Patent, Instrument, IP No.	Right Holders	Remark
523	HG_90nm_Embedded NORD Flash shrink cell_G2E1(0.075um^2) & G1E1(0.1um^2) Low Power_1.5V/5V_HHGrace_ FAB7 (FS090E1L57) Memory Cell Rules	Platform instrument	55/90nm Eflash/NOR platform	DM-FS090E1L57-MCR-1911	Hua Hong Wuxi, HHGrace	Licensed
524	HW_Agressive 90nm_Embedded NORD Flash shrink cell_G2E1(0.075um^2) & G1E1(0.1um^2) Low Power_1.5V/3.3V/5V_FAB7 (FSA90E1L07) Topological Layout Rules	Platform instrument	55/90nm Eflash/NOR platform	WXDM-FSA90E1L07-TLR-1985	Hua Hong Wuxi, HHGrace	Licensed
525	HW_Agressive 90nm_Embedded NORD Flash shrink cell_G2E1(0.075um^2) & G1E1(0.1um^2) Low Power_1.5V/3.3V/5V_FAB7 (FSA90E1L07) Electrical Design Rules version0.1	Platform instrument	55/90nm Eflash/NOR platform	WXDM-FSA90E1L07-EDR-1988	Hua Hong Wuxi, HHGrace	Licensed
526	HW_Agressive 90nm_Embedded NORD Flash shrink cell_G2E1(0.075um^2) & G1E1(0.1um^2) Low Power_1.5V/3.3V/5V_FAB7 (FSA90E1L07) Device Formation	Platform instrument	55/90nm Eflash/NOR platform	WXDM-FSA90E1L07-DEF-1987	Hua Hong Wuxi, HHGrace	Licensed
527	HW_Agressive 90nm_Embedded NORD Flash shrink cell_G2E1(0.075um^2) & G1E1(0.1um^2) Low Power_1.5V/3.3V/5V_FAB7 (FSA90E1L07) SPICE Model Design Manual	Platform instrument	55/90nm Eflash/NOR platform	WXDM-FSA90E1L07-SPI-1986	Hua Hong Wuxi, HHGrace	Licensed

S/N	Content or Name	Category	Platform	Patent, Instrument, IP No.	Right Holders	Remark
528	HW_Agressive 90nm_Embedded NORD Flash shrink cell_G2E1(0.075um^2) & G1E1(0.1um^2) Low Power_1.5V/3.3V/5V_FAB7 (FSA90E1L07) Topological Layout Rules(internal use only)	Platform instrument	55/90nm Eflash/NOR platform	WXDM-FSA90E1L07-TLR-1989	Hua Hong Wuxi, HHGrace	Licensed
529	HW_90nm_BCD_Low Power_1.5V/5V(Vgs),5V/9V/12V/24V(Vds)_HHGrace_1P7M_FAB7 (BD090LPFD7) Topological Layout Rules	Platform instrument	90nm BCD platform	WXDM-BD090LPFD7-TLR-1927	Hua Hong Wuxi, HHGrace	Licensed
530	HW_90nm_BCD_Low Power_1.5V/5V(Vgs),5V/9V/12V/24V(Vds)_HHGrace_1P7M_FAB7 (BD090LPFD7) Special Topological Layout Rules for internal use	Platform instrument	90nm BCD platform	WXDM-BD090LPFD7-TLR-1991	Hua Hong Wuxi, HHGrace	Licensed
531	HW_90nm_BCD_Low Power_1.5V/5V(Vgs),5V/9V/12V/24V(Vds)_HHGrace_1P7M_FAB7 (BD090LPFD7) Electrical Design Rules	Platform instrument	90nm BCD platform	WXDM-BD090LPFD7-EDR-1929	Hua Hong Wuxi, HHGrace	Licensed
532	HW_90nm_BCD_Low Power_1.5V/5V(Vgs),5V/9V/12V/24V(Vds)_HHGrace_1P7M_FAB7 (BD090LPFD7) Device Formation	Platform instrument	90nm BCD platform	WXDM-BD090LPFD7-DEF-1928	Hua Hong Wuxi, HHGrace	Licensed
533	HW_90nm_BCD_Low Power_1.5V/5V(Vgs),5V/9V/12V/24V(Vds)_HHGrace_1P7M_FAB7 (BD090LPFD7) SPICE Model Design Manual	Platform instrument	90nm BCD platform	WXDM-BD090LPFD7-SPI-1982	Hua Hong Wuxi, HHGrace	Licensed

S/N	Content or Name	Category	Platform	Patent, Instrument, IP No.	Right Holders	Remark
534	HW_90nm_BCD_Low Power_1.5V/5V(Vgs),5V/9V/ 12V/24V(Vds)_HHGrace_ 1P8M_FAB7 (BD090LPFD7) ESD and Latchup Design Guideline	Platform instrument	90nm BCD platform	WXDM-BD090LPFD7-ESD-1951	Hua Hong Wuxi, HHGrace	Licensed
535	HW_90nm_BCD_Low Power_1.5V/5V(Vgs),5V/9V/ 12V/24V(Vds)_HHGrace_ 1P7M_FAB7 (BD090LPFD7) (High Gain BJT/50K PLDD1 POLY Resistor) Topological Layout Rules	Platform instrument	90nm BCD platform	WXDM-BD090LPFD7-TLR-1983	Hua Hong Wuxi, HHGrace	Licensed
536	HW_5.0um_Super Junction_NFET G2_600V_1P1M_FAB7 (SJ5UMNF1A7) Topological Layout Rules	Platform instrument	Super Junction platform	WXDM-SJ5UMNF1A7-TLR-1949	Hua Hong Wuxi, HHGrace	Licensed
537	HHG_FL55NLPU0_ OWOSCRC050MDB	IP	55/90nm Eflash/NOR platform	WXIP-FL55NLPU0-0018-010	Hua Hong Wuxi, HHGrace	Licensed
538	HHG_FL55NLPU0_ OWPOR1P2000CA	IP	55/90nm Eflash/NOR platform	WXIP-FL55NLPU0-0006-020	Hua Hong Wuxi, HHGrace	Licensed
539	HHG_FL55NLPU0_ OWREG5P01P2DB	IP	55/90nm Eflash/NOR platform	WXIP-FL55NLPU0-0016-010	Hua Hong Wuxi, HHGrace	Licensed
540	HHG_FL55NLPU0_ OWBGR5P00P8DA	IP	55/90nm Eflash/NOR platform	WXIP-FL55NLPU0-0021-010	Hua Hong Wuxi, HHGrace	Licensed
541	HHG_FL55NLPU0_ OWPOR1P2000CB	IP	55/90nm Eflash/NOR platform	WXIP-FL55NLPU0-0007-020	Hua Hong Wuxi, HHGrace	Licensed
542	HHG_FL55NLPU0_ OWREG5P01P2DA	IP	55/90nm Eflash/NOR platform	WXIP-FL55NLPU0-0017-010	Hua Hong Wuxi, HHGrace	Licensed
543	HHG_FL55NLPU0_ OWPLLCG500MCH	IP	55/90nm Eflash/NOR platform	WXIP-FL55NLPU0-0008-010	Hua Hong Wuxi, HHGrace	Licensed

S/N	Content or Name	Category	Platform	Patent, Instrument, IP No.	Right Holders	Remark
544	HHG_FL55NLPU0_OWSCL7CLS	IP	55/90nm Eflash/NOR platform	WXIP-FL55NLPU0-0004-010	Hua Hong Wuxi, HHGrace	Licensed
545	HHG_LO55NLPU4_OPOSCRC054MDA	IP	65/55nm Logic/RFCOMS platform	WXIP-LO55NLPU4-0022-010	Hua Hong Wuxi, HHGrace	Licensed
546	HHG_LO55NLPU4_OPPOR1P2000CA	IP	65/55nm Logic/RFCOMS platform	WXIP-LO55NLPU4-0020-010	Hua Hong Wuxi, HHGrace	Licensed
547	HHG_LO55NLPU4_OPEFU064B0FDA	IP	65/55nm Logic/RFCOMS platform	WXIP-LO55NLPU4-0012-020	Hua Hong Wuxi, HHGrace	Licensed
548	HHG_LO55NLPU4_OPEFU032B0FDA	IP	65/55nm Logic/RFCOMS platform	WXIP-LO55NLPU4-0013-020	Hua Hong Wuxi, HHGrace	Licensed
549	HHG_LO55NLPU4_OPEFU016B0FDA	IP	65/55nm Logic/RFCOMS platform	WXIP-LO55NLPU4-0014-020	Hua Hong Wuxi, HHGrace	Licensed
550	HHG_LO55NLPU4_OPEFU256B0FDA	IP	65/55nm Logic/RFCOMS platform	WXIP-LO55NLPU4-0015-020	Hua Hong Wuxi, HHGrace	Licensed
551	HHG_LO55NLPU4_OPPLLCG500MCI	IP	65/55nm Logic/RFCOMS platform	WXIP-LO55NLPU4-0005-010	Hua Hong Wuxi, HHGrace	Licensed
552	HHG_LO55NLPU4_NPSCL7CNM	IP	65/55nm Logic/RFCOMS platform	WXIP-LO55NLPU4-0001-020	Hua Hong Wuxi, HHGrace	Licensed
553	HHG_LO55NLPU4_NPSCL7CHS	IP	65/55nm Logic/RFCOMS platform	WXIP-LO55NLPU4-0002-020	Hua Hong Wuxi, HHGrace	Licensed
554	HHG_LO55NLPU4_NPSCL7CLS	IP	65/55nm Logic/RFCOMS platform	WXIP-LO55NLPU4-0003-020	Hua Hong Wuxi, HHGrace	Licensed
555	HHG_BD090LPFD7_TISCL11LNM	IP	90nm BCD platform	WXIP-BD090LPFD7-0023-020	Hua Hong Wuxi, HHGrace	Licensed
556	HHG_FSA90E1L07_TPRAS0384DBSA	IP	55/90nm Eflash/NOR platform	WXIP-FSA90E1L07-0011-020	Hua Hong Wuxi, HHGrace	Licensed

S/N	Content or Name	Category	Platform	Patent, Instrument, IP No.	Right Holders	Remark
557	HHG_FSA90E1L07_TPSCL7CNM	IP	55/90nm Eflash/NOR platform	WXIP-FSA90E1L07-0010-010	Hua Hong Wuxi, HHGrace	Licensed
558	HHG_FSA90E1L07_TPRAMSAC	IP	55/90nm Eflash/NOR platform	WXIP-FSA90E1L07-0009-020	Hua Hong Wuxi, HHGrace	Licensed
559	HHG_FSA90E1L07_TPPADLWCCRDDA	IP	55/90nm Eflash/NOR platform	WXIP-FSA90E1L07-0019-010	Hua Hong Wuxi, HHGrace	Licensed
560	HHG_FSA90E1L07_TPFLM128K4ATA	IP	55/90nm Eflash/NOR platform	WXIP-FSA90E1L07-0024-010	Hua Hong Wuxi, HHGrace	Licensed

Shanghai Huahong Grace Semiconductor Manufacturing Corporation, the right holder, granted Hua Hong Wuxi, an ordinary and non-transferable license to use the above 495 patents, 24 IPs and 41 platform instruments for the purpose of manufacturing in China, for a license fee of US$45.70 million. The licensing contract was signed in December 2020, and the above intangible assets were recorded by the valued entity after the valuation benchmark date.

9. Relevant assets involved in the citations of conclusions in reports of other organizations

This valuation report does not contain any citations of reports of other organizations.

IV. TYPE OF VALUE

According to the purpose of the valuation, the type of value of the valuation object is market value.

Market value means the estimated amount for which a valuation object should exchange on the Valuation Benchmark Date between a willing buyer and a willing seller acting knowledgeably, prudently and without compulsion, in an arm's length transaction.

V. VALUATION BENCHMARK DATE

The valuation benchmark date of this report is 30 June 2021.

The valuation benchmark date was determined by the consignor. In determining the valuation benchmark date, the realization of economic behaviors and the factors as at the end of the accounting period were mainly taken into consideration. Asset valuation is to provide a value reference for the assets at a certain point in time, and select the end of the accounting period as the valuation benchmark date, which can help fully reflect the overall conditions of

the assets of the appraisee; meanwhile, based on the principle of helping ensure that the valuation results effectively serve the purpose of the valuation, accurately defining the scope of valuation, accurately and efficiently checking and verifying the assets, reasonably selecting valuation references, a date closer to the date of implementing the relevant economic behavior plan was selected as the valuation benchmark date.

VI. BASIS OF VALUATION

(I) Basis of economic behaviors

1. Resolution of the Board of Directors of Hua Hong Semiconductor (Wuxi) Limited (Xi Hua Hong Board [2021] No.13);

2. Minutes of Management Meeting of Shanghai Huahong (Group) Co., Ltd. (Hu Huahong Meeting [2021] No.11);

3. Request for Instructions on Capital Increase of Hua Hong Semiconductor (Wuxi) Limited under Non-public Agreement (Hu Huahong [2021] No.65);

4. Asset valuation engagement contract.

(II) Applicable laws and regulations

1. Asset Appraisal Law of the People's Republic of China (passed at the 21st meeting of the 12th session of the Standing Committee of the National People's Congress on 2 July 2016);

2. Company Law of the People's Republic of China (revised at the 6th meeting of the 13th session of the Standing Committee of the National People's Congress on 26 October 2018);

3. Civil Code of the People's Republic of China (adopted at the 3rd session of the 13th National People's Congress on 28 May 2020);

4. Measures for Financial Supervision and Administration of the Asset Valuation Industry (Order No. 86 of the Ministry of Finance of the People's Republic of China);

5. Land Administration Law of the People's Republic of China (revised at the 12th meeting of the 13th session of the Standing Committee of the National People's Congress on 26 August 2019);

6. Enterprise Income Tax Law of the People's Republic of China (revised at the 7th meeting of the 13th Standing Committee of the National People's Congress on 29 December 2018);

7. Law of the People's Republic of China on State-owned Assets of Enterprises (passed at the 5th meeting of the 11th session of the Standing Committee of the National People's Congress on 28 October 2008);

8. Interim Regulation on the Supervision and Administration of State-owned Assets of Enterprises (Order No. 378 of the State Council and revised in accordance with the Order No. 588 of the State Council, Order No. 709 of the State Council of the People's Republic of China);

9. Measures for Administration of Appraisal of State-owned Assets (Order No. 91 of the State Council);

10. Notice on Issuing the Detailed Rules for the Implementation of the Measures for Administration of Appraisal of State-owned Assets (GZBF [1992] No. 36);

11. Interim Measures for Administration of Appraisal of State-owned Assets of Enterprises (Order No. 12 of the State-owned Assets Supervision and Administration Commission of the State Council);

12. Notice on Matters Related to the Enhancement of Administration of Appraisal of State-owned Assets of Enterprises (GZWCQ [2006] No. 274);

13. Notice on Matters Regarding Review of Valuation Reports of State-owned Assets of Enterprises (GZCQ [2009] No. 941);

14. Work Guidelines for Filing of Projects for Appraisal of State-owned Assets of Enterprises (GZFCQ [2013] No. 64);

15. Measures for Supervision and Administration of State-owned Asset Transactions of Enterprises (Order No.32 of the State-owned Assets Supervision and Administration Commission and the Ministry of Finance of the State Council);

16. Manual for Approval and Filing of State-owned Asset Appraisal Projects of Enterprises in Shanghai (Shanghai SASAC Appraisal [2020] No.100);

17. Manual for Review of State-owned Asset Appraisal Reports of Enterprises in Shanghai (Shanghai SASAC Appraisal [2018] No.353);

18. Interim Measures for Administration of State-owned Asset Appraisal of Enterprises in Shanghai (Shanghai SASAC Appraisal [2019] No.366);

19. Accounting Standards for Business Enterprises – Basic Standards (Order No.33 of the Ministry of Finance) and Decision of the Ministry of Finance on Amending the Accounting Standards for Business Enterprises – Basic Standards (Order No.76 of the Ministry of Finance);

20. Provisional Regulations of the People's Republic of China on Value-added Tax (Order No.691 of the State Council);

21. Notice from the Ministry of Finance and the State Taxation Administration on Adjusting the Value-added Tax Rate (Cai Shui [2018] No.32);

22. Notice on Comprehensive Implementation of Trial of Replacing Business Tax with Value-added Tax (Cai Shui [2016] No.36);

23. Announcement on Deepening of Reform of Policies in Relation to Value-added Tax (Announcement No.39 of the Ministry of Finance, the State Taxation Administration and the General Administration of Customs in 2019);

24. Patent Law of the People's Republic of China (Order No.8 of the President of the People's Republic of China in 2008);

25. Notice on Further Standardization of Bank Confirmation and Reply (Cai Hui [2020] No.12), and Guideline for Bank Confirmation and Reply (Cai Ban Hui No.21 [2020]);

26. Notice on Improving the Policy of Addition to Research and Development Expenses Before Tax (Cai Shui [2015] No.119);

27. Notice on Increasing the Percentage of Addition to Research and Development Expenses Before Tax (Cai Shui [2018] No.99) by the Ministry of Finance, the State Taxation Administration and the Ministry of Science and Technology;

28. Provisional Regulations of the People's Republic of China Governing Land Use Tax in Cities and Towns (revised for the third time in accordance with the Order No. 645 of the State Council on 7 December 2013);

29. Other relevant laws, regulations, notices and documents.

(III) Basis of valuation criteria

1. Basic Standards for Asset Valuation (CZ [2017] No. 43);

2. Professional Codes of Ethics for Asset Valuation (China Appraisal Society [2017] No. 30);

3. Practice Guidelines for Asset Valuation – Asset Valuation Report (China Appraisal Society [2018] No. 35);

4. Practice Guidelines for Asset Valuation – Asset Valuation Procedures (China Appraisal Society [2018] No. 36);

5. Practice Guidelines for Asset Valuation – Asset Valuation Engagement Contract (China Appraisal Society [2017] No. 33);

6. Practice Guidelines for Asset Valuation – Asset Valuation Files (China Appraisal Society [2018] No. 37);

7. Practice Guidelines for Asset Valuation – Use of Expert Work and Relevant Reports (China Appraisal Society [2017] No. 35);

8. Practice Guidelines for Asset Valuation – Enterprise Value (China Appraisal Society [2018] No. 38);

9. Practice Guidelines for Asset Valuation – Intangible Assets (China Appraisal Society [2017] No. 37);

10. Practice Guidelines for Asset Valuation – Real Estate (China Appraisal Society [2017] No. 38);

11. Practice Guidelines for Asset Valuation – Machinery Equipment (China Appraisal Society [2017] No. 39);

12. Practice Standards for Assets Appraisal – Asset Appraisal Approach (China Appraisal Society [2019] No. 35);

13. Guidance on Valuation Report of State-owned Assets of Enterprises (China Appraisal Society [2017] No. 42);

14. Quality Control Guidance on the Business of Asset Valuation Agencies (China Appraisal Society [2017] No. 46);

15. Guiding Opinions on Types of Value under Asset Valuation (China Appraisal Society [2017] No. 47);

16. Guiding Opinions on Legal Ownership of Asset Valuation Objects (China Appraisal Society [2017] No. 48);

17. Terminology of Asset Appraisal Criteria 2020 (China Appraisal Society [2020] No. 31).

(IV) Ownership bases

1. Capital contribution certificate;

2. State-owned land use certificate;

3. Housing ownership certificate or real estate right certificate;

4. Patent certificate;

5. Motor vehicle driving license;

6. Contracts in relation to transfer of property rights;

7. Other relevant property right certificates.

(V) Pricing basis

1. The loan prime rate (LPR) and foreign exchange rate published by the People's Bank of China on the valuation benchmark date;

2. Project feasibility study reports, project investment estimates, design estimates and other materials provided by the company;

3. Payment progress statistics and relevant payment vouchers provided by the company for construction in progress;

4. Financial statements and audit reports for previous years provided by the company;

5. Future annual business plans provided by relevant departments of the company;

6. Business contracts executed by the company and relevant organizations;

7. Field survey records of valuers and other relevant valuation information collected;

8. Wind Information Finance Terminal;

9. Other information related to the asset valuation.

(VI) Other reference bases

1. Asset Appraisal Expert Guideline No.8 – Check and Verification in Asset Valuation (Zhong Ping Xie [2019] No.39);

2. Asset Valuation Expert Guideline No.12 – Calculation of Discount Rates in Valuation of Enterprises by the Income Approach (Zhong Ping Xie [2020] No.38);

3. Regulation on Urban Land Gradation and Classification (GB/T 18507-2014);

4. Technical Specification on Land Price Evaluation for Transfer of State-Owned Construction Land Use Rights (Guo Tu Zi Ting Fa [2018] No.4);

5. Asset lists and valuation declaration forms provided by the valued entity;

6. Pro forma auditor's report issued by Ernst & Young Hua Ming LLP;

7. Information base of China Enterprise Appraisals Co., Ltd.

VII. VALUATION METHOD

Income approach means a valuation approach that capitalises or discounts the expected income of an appraisee to determine its value. The discounted cash flow approach within the income approach is adopted to indirectly arrive at the value of total shareholders' equity.

Market approach means a valuation approach that determines the value of an appraisee based on the market price of comparables by comparing the appraisee with the comparables. The listed company comparison method within the market approach is adopted. Listed company comparison method means a valuation approach that obtains and analyzes the operating and financial information of comparable listed companies, calculates the value ratio, and determines the value of the appraisee based on the comparison with the appraisee.

Asset-based approach means a valuation approach that determines the value of the appraisee by appraising the values of its on-balance-sheet and identifiable off-balance-sheet assets and liabilities.

The valuation approaches adopted for the valuation are the income approach, the market approach and the asset-based approach. The valuation approaches are adopted for the following reasons:

The valued entity is an enterprise with sustainable economic growth in the future, quantizable expected income, predictable expected period of benefit, and predictable risks associated with expected income closely related to discounting. Therefore, the income approach is applicable to the valuation.

Hua Hong Wuxi is engaged in the wafer manufacturing industry. There are a certain number of listed companies similar to the valued entity in the securities market in China, which are active in trading, with published trading and financial information and sufficient information. In consideration of the appraisee, the purpose of the asset valuation and the information collected by the appraiser, the market approach is applicable to the valuation.

As assets and liabilities in Hua Hong Wuxi can be reasonably identified according to the accounting policies, business operation and other conditions, appropriate and specific valuation methods in the valuation can be selected according to the characteristics of assets and liabilities, and can be implemented. Therefore, the asset-based approach is applicable to the valuation.

(I) Asset-based approach

1. Current assets

(1) The appraised value of cash and cash equivalents, including cash and bank deposits, are determined, based on the verified value, through cash counting, verification of bank statements, bank confirmations, etc. The value of cash and cash equivalents in foreign currency is determined by converting them into RMB at the central parity rate published by the People's Bank of China on the valuation benchmark date.

(2) With regard to notes receivable, whether the subsidiary ledger, the general ledger and the balance of the statements are consistent, and whether they are consistent with the detailed statements to be evaluated, and whether the face value, incurrence time, business contents and coupon rate of the notes receivable and the accounting records are consistent are checked to confirm the authenticity and completeness of the notes receivable, and verify the consistency between the amounts of the accounts, statements and vouchers. The verification shows that the notes receivable are true, and the amounts of the notes are accurate, and there is no interest accrued. The verified carrying value is the appraised value. The value of notes receivable in foreign currency is determined by converting them into RMB at the central parity rate published by the People's Bank of China on the valuation benchmark date.

(3) For trade debtors and other receivables, the valuers determine the appraised value according to the potentially recoverable amount of each payment, on the basis of verifying the correctness of the receivables. With regard to those receivables which are, with sufficient reason, believed to be fully recoverable, the appraised value is calculated as the total amount of the receivables. For receivables part of which is probably non-recoverable, if it is difficult to determine the amount of non-recoverable receivables, the valuers analyze the amount, the duration and reasons of arrears, the recovery of payments, the funds, credit, operation and management conditions of debtors, by reference to historical data and through on-site investigation, and estimate the nonrecoverable amount according to the aging analysis method, and calculate the appraised value after deducting such amount as the risk loss. If there is conclusive evidence that receivables cannot be recovered, the appraised value shall be nil; the "bad debt provision" on the book shall be nil. Foreign currency amounts were translated into Renminbi using the benchmark exchange rate of Renminbi as at the date of valuation announced by the People's Bank of China.

(4) For prepayments, the valuers check relevant materials purchase contracts or supply agreements, to understand the services and goods received between the Valuation Benchmark Date to the on-site verification date for the valuation. If the supplier is not found to be bankrupt, cancelled or unable to provide goods or services on schedule as specified in contracts, the verified carrying amount is the appraised value. For those prepayments in respect of which there is conclusive evidence showing the impossibility of receiving corresponding goods, and which cannot form corresponding assets or interests, the appraised value is nil. Foreign currency amounts were translated into Renminbi using the benchmark exchange rate of Renminbi as at the date of valuation announced by the People's Bank of China.

(5) Most purchased raw materials are purchased recently, and the appraised value of each asset is arrived at by multiplying the quantity checked by the unit price recorded.

(6) In-process products are valued, using the cost approach. Through the valued entity, the appraiser investigated and understood the production process and flow, sales model, supply-demand relationship and market price information of the finished products and the value composition of the in-process products. The accountant made a provision for diminution in value based on recent changes in the selling price of the completed products and the degree of completion of the in-process products. The appraiser determined the appraised value based on the verified results.

(7) Finished products are generally valued, based on their full costs, which may be increased by appropriate profit depending on the sales of the products in the market. The appraised value of a popular product is determined based on the ex-factory selling price less selling expenses and all taxes; the appraised value of a normally sold product is based on the ex-factory selling price less selling expenses, all taxes and an appropriate amount of net profit after tax; the appraised value of a product which is barely sold is determined based on the ex-factory selling price less selling expenses, total taxes and net profit after tax; the appraised value of a product which is unsalable, overstocked or sold at a lower price is determined based on its net realizable value.

(8) For other current assets, the appraiser checks whether the subsidiary ledger, the general ledger and the balance of the statements are consistent, checks some original vouchers, contracts and other relevant information on a sampling basis, and verifies the authenticity, business contents and amounts of transactions. The appraised value is determined based on the verified carrying value.

2. Long-term receivables

The appraiser consults loan contracts, account books and other information, and on the basis of verifying value composition and the debtor's conditions, specifically analyzes the factors including the amount, time and reason, recovery of payment, the debtor's capital, credit and current operation and management conditions. The appraised value is determined based on the verified carrying value.

3. Long-term equity investments

(1) Wholly-owned and controlling long-term equity investments

In the overall valuation of wholly-owned and controlling long-term equity investments, the valuers assess the value of the entire shareholders' equity in the investee, which is multiplied by the shareholding percentages to arrive at the values of the shareholders' shares of equity.

4. Fixed assets of equipment

The statements were consistent with those listed in the account books after verifying against the spreadsheets of the machinery and equipment provided by the company. At the same time, the ownership was recognized after examining and verifying related contracts, legal ownership certificates and accounting documents. On such basis, professional engineering staff was assigned to carry out necessary on-site inspection and verification of major equipment.

For the purpose of this valuation and subject to the principle of continuity and market price, the replacement cost approach has been mainly used after taking into account the characteristics of the equipment to be evaluated and the collected information.

Evaluation value = full replacement cost × comprehensive newness rate

(1) Determination of full replacement cost

① Machinery and equipment

A. For equipment that is of large value and requires installation, the full replacement cost mainly consists of the purchase price of equipment (tax exclusive) (current price of non-standard equipment), transportation and miscellaneous expenses, equipment foundation fee, installation engineering fee, upfront construction and other expenses and capital cost.

Full replacement cost = purchase price of equipment + transportation and miscellaneous expenses + installation and commissioning fees + upfront and other expenses + capital cost – deductible VAT.

B. For equipment that is of small value and ready for direct use, the full replacement cost generally consists of the purchase price of equipment and transportation and miscellaneous expenses. In addition, the input VAT is deducted for the purchase of fixed assets according to relevant national tax policies. The formula for full replacement cost is set out below:

Full replacement cost of equipment ready for direct use = purchase price of equipment + transportation and miscellaneous expenses – deductible VAT

C. Equipment purchase cost

The appraised values of domestic machinery equipment are mainly determined by asking manufacturers or agents the prices, or by making reference to price information such as the Quotation Catalogue of Mechanical and Electrical Products in 2021, as well as recent contract prices of similar equipment. With regard to a few pieces of equipment for which the purchase prices are not available, the purchase prices are determined, based on the price change rates of equipment of the same category produced in the same era.

For imported equipment, the equipment purchase cost = CIF+ customs duties + foreign trade agency fee + bank charges

D. Determination of freight and miscellaneous expenses

Equipment transportation and miscellaneous expenses means all expenses of transportation from the factory site or distribution site to the installation site, including transportation expenses, packaging expenses, handling expenses, purchasing and safekeeping expenses, and service charges of the supply and marketing department. The expenses are determined according to the actual freight if any. If the supply conditions specify that the supplier is responsible for the transportation (the purchase price includes relevant expenses), freight and miscellaneous expenses are not included.

E. Determination of equipment foundation fee

The equipment foundation fee is appraised uniformly under the plants and structures and is no longer counted in the equipment valuation.

F. Determination of equipment installation and commissioning fee

The equipment installation and commissioning fee rates are determined with reference to the Handbook of Common Data and Parameters for Asset Valuation; for small equipment that does not need to be installed, installation and commissioning fees are not taken into consideration.

G. Preliminary and other costs

Preliminary and other costs include project construction management fees, survey and design fees, project supervision fees, feasibility study fees, bidding agency fees, and environmental impact assessment fees. The costs are calculated with reference to relevant rate basis and standards formulated by national ministries and commissions.

According to the Circular (Cai Shui [2016] No.36), the trial for replacing the business tax with the value-added tax has been fully implemented nationwide since 1 May 2016. The value-added tax should be deducted for preliminary costs within the scope of replacing the business tax with the value-added tax.

H. Deductible value-added tax in the equipment purchase price

With regard to equipment for which the value-added tax can be deducted, the deductible value-added tax is deducted after the calculation of such tax.

② Transport vehicles

Based on recent price information of the vehicle market such as local vehicle market sales information, the current tax-inclusive purchase prices of transport vehicles are determined; on this basis, the vehicle purchase tax and the license fee for new vehicle registration are included in accordance with the Provisional Regulations of the People's Republic of China on Vehicle Purchase Tax; meanwhile, in accordance with the policy of deduction of value-added tax on vehicle purchase as specified in the Circular (Cai Shui [2016] No.36), its full replacement value is calculated as follows:

Full replacement value = purchase price exclusive of tax + vehicle purchase tax + registration fee for new vehicle

③ Electronic equipment

The full replacement value is determined based on local market information and recent online transaction prices.

For the electronic equipment that has been purchased earlier and has no relevant model in the current market but can be used, the full replacement value is determined with reference to the price exclusive of tax in the second-hand equipment market.

(2) Determination of comprehensive newness rate

The rate is amended and determined through the on-site inspection of the use of equipment (instrument) (engineering environment, maintenance, appearance, utilization rate and availability rate), and review of the operation, incident, repair, performance assessment and other necessary records of the equipment (instrument).

① Special equipment and general machinery and equipment

Its remaining useful life is confirmed mainly in accordance with the economic lifespan of the equipment, used life, the on-site investigation and understanding of the usage and technology conditions of equipment. The comprehensive newness rate can be determined by the following formula on the basis of the remaining useful life.

The comprehensive newness rate = remaining useful life/(remaining useful life + used life) × 100%

② Special equipment and general machinery and equipment

The comprehensive newness rate of small size equipment such as electronic equipment and air conditioners can be determined mainly through its economic lifespan; the comprehensive newness rate of large size electronic equipment can be determined with reference to the work environment and operation of the equipment.

③ According to the mandatory vehicle scrapping standard issued by the state, the newness rate of a vehicle based on the vehicle mileage or service life, whichever is lower, is used, and then adjusted based on the on-site survey. The formulas are as follows:

The newness rate based on the service life = (economic useful life –used life)/economic useful life × 100%

The newness rate based on mileage = (specified mileage – traveled mileage)/specified mileage × 100%

(3) Determination of appraised value

The appraised value of equipment = full replacement value of equipment × comprehensive newness rate

5. Housing and building assets

The cost approach is mainly used to value houses and structures.

(1) Cost approach

The full replacement value of houses and buildings generally includes construction and installation cost, preliminary and other costs, capital costs and deductible value-added tax. The full replacement value of houses and buildings is calculated as follows:

Full replacement value = construction and installation cost + preliminary and other costs + capital costs – deductible value-added tax

① Determination of full replacement value

Full replacement value of houses and buildings generally includes construction and installation cost, preliminary and other costs, capital costs and deductible value-added tax. The full replacement value of houses and buildings is calculated as follows:

Full replacement value = construction and installation cost + preliminary and other costs + capital costs – deductible value-added tax

A. Construction and installation cost

For projects with a budget estimate, budget and final account information, the construction and installation cost are determined by the budget reconciliation approach; in other words, the labor cost, material cost and machinery cost of the project are arrived at based on the quantities in the budget for the buildings (structures) to be valued, and are increased or decreased according to the changes in labor cost, material and machinery cost on the valuation benchmark date and the date of final accounts report of the project; after that, the civil construction costs and installation project costs are calculated respectively according to the charging standard and documents implemented in the local area, so as to arrive at the construction and installation cost;

For a project with a small value and simple structure, the construction cost index or other relevant price indexes are used to calculate and determine the construction and installation cost.

B. Preliminary and other costs

Preliminary and other costs of a construction project are calculated according to the project construction investment of the valued entity and the rate standards specified by the industry, the national or local government.

C. Capital costs

Capital costs are calculated according to the reasonable construction period of the property right holder, and by reference to the RMB loan prime rate of financial institutions published by the People's Bank of China for the same period on the valuation benchmark date, and based on the sum of the construction and installation cost, preliminary and other costs, and based on the even investment of capital. Capital costs are calculated as follows:

Capital costs = (construction and installation cost inclusive of tax + preliminary and other costs) × capital cost rate × reasonable construction period/2

D. Deductible value-added tax

According to the relevant documents, with regard to housing assets that meet the conditions of deduction of value-added tax, the deductible value-added tax is calculated.

② Determination of comprehensive newness rate

The comprehensive newness rate is determined according to the following formula:

A. The newness rate of large, high-value and important buildings (structures) based on the service life is calculated based on the economic useful life and the used life; the newness rate based on on-site survey is calculated, based on the on-site survey of the actual use of their structure, decoration, ancillary equipment and other parts, and then the comprehensive newness rate is determined according to the following formula.

Comprehensive newness rate = newness rate based on the service life × 0.4 + newness rate based on on-site survey × 0.6

B. With regard to buildings (structures) with a small value and simple structure, the newness rate is determined mainly based on their economic life, and then adjusted according to the on-site survey. The formulas are as follows:

Newness rate based on the service life = (economic life – used life)/economic life × 100%

Comprehensive newness rate = newness rate based on the service life × adjustment coefficient

③ Determination of appraised value

Appraised value = full replacement value × comprehensive newness rate

6. Construction in progress

Construction in progress is valued, using the cost approach. In order to avoid double valuation of assets and omission of asset value, the following valuation approach is adopted in consideration of the characteristics of construction in progress and the types and specific conditions of each construction in progress:

With regard to construction in progress whose major equipment or main structures of the buildings are transferred to fixed assets but certain cost items are not transferred, its appraised value is nil if its value is included in the appraised value of fixed assets.

With regard to normal construction in progress with the commencement date more than half a year prior to the valuation benchmark date, if there are no significant changes in the price of equipment, materials and labor involved in the investment during the period, the appraised value is calculated as the carrying value less unreasonable expenses plus appropriate capital costs; if there are significant changes in the price of equipment, materials and labor involved in the investment, the replacement value is determined based on all costs which would be incurred for the completed quantities in the construction in progress if the qualities were completed on the valuation benchmark date under normal circumstances; if it is obvious that there are more serious depreciation due to physical obsolescence, depreciation due to functional obsolescence and depreciation due to economic obsolescence, the depreciation shall be deducted, otherwise the depreciation is nil.

According to information obtained by the appraiser on the site, the equipment installation project was under commissioning on the valuation benchmark date.

The valuation is based on different payment amounts and different fund utilization periods, the bank loan interest rate for the same period plus capital costs, and based on the even investment. For equipment with a short cycle and small value, the capital costs are excluded. Namely:

Appraised value = equipment costs paid and recorded + capital costs

Equipment costs paid = contract amount × payment proportion (%) × exchange rate on the valuation benchmark date for imported equipment

Capital costs = equipment costs paid × annual interest rate × fund utilization period × 0.5

7. Land use rights

(1) Land datum value method

The land datum value method is a method that uses the valuation results such as urban land datum value and the table of correction coefficients for land datum values, compares the regional and individual conditions of the parcel to be valued with the average conditions of the area in which the parcel is located, according to the substitution principle, and selects the corresponding correction coefficient to correct the land datum value with reference to the correction coefficient table, so as to arrive at the price of the parcel to be valued, on the valuation benchmark date.

The parcel price under the development level set for the land datum value = land datum value × K1 × K2 × K3 × (1+$\sum$K) + K4

Where: K1 – Duration correction coefficient

K2 – Correction coefficient for the land use period

K3 – Correction coefficient for the plot ratio

$\sum$K – Sum of correction coefficients affecting regional and individual factors of land prices

K4 – Correction of the development level

(2) Market comparison approach

It is a method that estimates the objective and reasonable price or value of a parcel to be valued, by comparing the parcel with similar land transactions conducted on a date close to the valuation benchmark date, and making appropriate corrections to the known prices of these similar land transactions.

Formula:

The price of the parcel to be valued = price of the comparable × correction of trading conditions × correction for the transaction time × correction of regional factors × correction of individual factors × correction of the land use period

8. Other intangible assets

Other intangible assets subject to valuation are mainly software purchased by the enterprise, non-patented technology purchased by the enterprise, patents owned by the enterprise, etc.

(1) Software purchased by the enterprise

The appraised value of purchased software that is available for sale in the market without an upgraded version on the valuation benchmark date is determined based on the market price of similar software on the valuation benchmark date. The appraised value of purchased software that is available for sale in the market with upgraded versions is calculated as the current market price less the software upgrade fee. The appraised value of software that has not been traded in the market but can continue to be used for its original purpose is calculated as follows, with reference to the original acquisition cost of the enterprise and the depreciation rate which is determined based on the changing trend of the market price of similar software:

The appraised value = original purchase price × (1 – depreciation rate)

(2) Technical intangible assets (patented technology and know-how)

The basic valuation methods for technical intangible assets include the cost approach, market approach and income approach.

Cost approach is a method that values technical intangible assets by estimating the replacement cost and the depreciation rate of the technical intangible assets. The costs of technical intangible assets include all materialized labor and living labor expenses during the development or acquisition and possession period. Due to the incompleteness, weak correspondence and virtuality of their costs, the valuation results under the cost approach are often hardly able to accurately reflect the market values of technical intangible assets. Therefore, the cost approach is not adopted for the valuation.

The market approach is a method that determines the values of technical intangible assets by comparing the technical intangible assets with the transaction cases of comparable technical intangible assets and making corrections. As it is difficult to collect transaction cases of similar technical intangible assets, the market approach is not adopted for the valuation.

The income approach is a method that determines the values of technological intangible assets by predicting and discounting the future incomes from technological intangible assets. Based on the analysis, the incomes and risks of the technical intangible assets in future years can be reasonably estimated by appropriate methods. Therefore, the income approach is adopted for the valuation. As the patented and non-patented technologies of the valued entity jointly contribute to the business of the enterprise, the income approach is used to value the technological intangible assets on an aggregate basis.

The basic formula under the income approach is as follows:

$$V = \sum_{i=1}^{n} \frac{R_i}{(1+r)^n}$$

Where: V – Appraised value of technical intangible assets;

n – Service life under the income approach;

Ri – Income from technical assets in the i year thereafter;

r – Discount rate.

9. Right-of-use assets

After checking lease contracts and consulting relevant vouchers, the appraiser used the verified carrying value as the appraised value.

10. Other non-current assets

The appraiser investigated and understood the reasons for the formation of other non-current assets and consulted relevant contracts, invoices and vouchers. The appraised values of other non-current assets are their verified carrying values.

11. Liabilities

Liabilities of the valued entity include short-term borrowings, accounts payable, contract liabilities, salaries payable to employees, taxes payable, other payables, non-current liabilities due within one year, other non-current liabilities and long-term borrowings. The appraiser first checked the consistency between the subsidiary ledger and the general ledger, and checked specific items. Meanwhile, the appraiser carried out a selective examination of relevant accounting vouchers and other information of payments. According to the selective examination of the vouchers, the appraiser confirmed whether the carrying amount of debts of the appraiser was true, and took the liabilities actually borne by the enterprise as the appraised value. Other current liabilities are mainly deferred income, which are government subsidies for projects related to enterprise construction and are non-repayable liabilities, and their appraised values are zero.

(II) Income approach

1. Specific methods and models selected under the income approach

(1) Models under the income approach

The valuation model under the income approach is discounted free cash flow to firm.

The discounted cash flow approach within the income approach is adopted to indirectly arrive at the value of total shareholders' equity.

The value of an enterprise consists of the values of operating assets arising from normal operating activities and non-operating assets unrelated to non-normal operating activities.

The total value of an enterprise = value of operating assets + value of excess assets + value of non-operating assets and liabilities + value of long-term equity investments appraised separately

The value of total shareholders' equity = total value of the enterprise – interest-bearing liabilities

Interest-bearing liabilities means liabilities recorded as at the valuation benchmark date that bear interest, including short-term borrowings, interest-bearing notes payable, long-term borrowings due within one year, long-term borrowings and other payables of a borrowing nature.

Operating assets means assets and liabilities involved in the forecast of free cash flow to firm after the valuation benchmark date, in relation to the production and operation activities of the valued entity. The value of operating assets is calculated as follows:

$$P = \sum_{i}^{n} F_i (1 + r)^{-i} + F_{n+1} / r \times (1 + r)^{-n}$$

Where:

P – Value of the operating assets of the enterprise on the valuation benchmark date;

F_i – Expected free cash flow in the i year thereafter;

F_{n+1} – Expected free cash flow for the perpetual period;

r – Discount rate;

i – Number of planned years during the period of benefit;

n – Forecast period.

Free cash flow to firm is calculated as follows:

Free cash flow to firm = EBIT × (1 – income tax rate) + depreciation and amortisation – capital expenditures – increase in working capital + others

(2) Determination of the forecast period

As the enterprise's near-term income can be predicted reasonably while the long-term income forecast is relatively less reasonable, the free cash flow of the enterprise is forecast, using the phased method according to customary practices. In other words, the future cash flow of the enterprise is divided into cash flows in free cash flow during explicit forecast period and free cash flow after explicit forecast period ended the year of stable production and operation. The valued entity confirms that the forecast period is 5 years ended 2026.

(3) Determination of the period of benefit

As the valued entity operates normally on the valuation benchmark date, there are no restrictions on the useful life of the core assets that will affect the going concern of the enterprise, the production and operation duration of the enterprise and the period of ownership of investors, etc., or the above restrictions can be removed and they may be used perpetually by way of extension. Therefore, in the estimation, it is assumed that the valued entity will continue as a going concern after the valuation benchmark date, and the corresponding period of benefit is indefinite.

(4) Determination of net cash flow

The valuation model under the income approach is free cash flow to firm, and the free cash flow is calculated as follows:

Free cash flow (for each year in the forecast period) = EBIT × (1 – income tax rate) + depreciation and amortisation – capital expenditures – addition to working capital + others = operating income – operating cost – taxes and surcharges – period costs (management costs and selling costs) + net non-operating income and expenditure – income tax + depreciation and amortization – capital expenditures – addition to working capital + others

(5) Determination of final value

The period of benefit is perpetual and the final value is calculated as follows:

Final value = expected annual free cash flow for the perpetual period/discount rate

The expected annual free cash flow for the perpetual period is determined by adjusting the cash flow for the last year of the forecast. Specific adjustments mainly include depreciation and capital expenditures. The adjustment principle of capital expenditures is to regard as capital expenditures, the costs necessary for continuing as a going concern without further extending the perpetual period existing at the end of the forecast period.

(6) Determination of discount rate

According to the principle that the income should be consistent with the discount rate, the income in the valuation is based on the net cash flow for firm, and the discount rate is the weighted average capital costs.

Formula:

$$WACC = K_e \times \left[\frac{E}{E+D}\right] + K_D \times (1-T) \times \left[\frac{D}{E+D}\right]$$

Where E: Market value of equity

D: Market value of debt

K_e: Equity capital cost

K_D: Cost of debt capital

T: Income tax rate for the valued entity

The equity capital cost is calculated as follows, based on the internationally and commonly used CAPM model:

$$K_e = r_f + MRP \times \beta + r_c$$

Where: r_f: Risk-free interest rate;

MRP: Market risk premium;

β: Systematic risk coefficient of equity;

r_c: Enterprise-specific risk adjustment coefficient.

(7) Determination of excess asset value

Excess assets are assets equal to the excess over the production and operation needs of the enterprise on the valuation benchmark date and are not involved in the forecast of free cash flow to firm after the valuation benchmark date. The excess assets of the valued entity include the cash and cash equivalents net of cash on hand. The cost approach is adopted for the valuation.

(8) Value of non-operating assets and liabilities

Non-operating assets and liabilities means assets and liabilities that are unrelated to the production and operation activities of the valued entity and are not involved in the forecast of free cash flow to firm after the valuation benchmark date. Non-operating assets and liabilities of the valued entity include other current assets, long-term receivables, and other payables paid by related parties on behalf of the appraisee, and deferred income. The cost approach is adopted for the valuation.

(9) Long-term equity investments valued separately

Long-term equity investments valued separately means the external equity investments formed by the enterprise as at the valuation benchmark date and not included in the forecast under the income approach.

2. Value of interest-bearing debt

Interest-bearing debt means the debt on which the valued entity is required to pay interest on the valuation benchmark date. The interest-bearing debt of the valued entity includes short-term borrowings, other payables with interest, long-term borrowings and interest payable. The appraised value of the interest-bearing debt is its verified carrying value.

(III) Market approach

Market approach means an evaluation method that determines the value of the appraisee by comparing the appraisee with comparable listed companies or comparable transaction cases. The listed company comparison method and the merger and acquisition case comparison method share the common feature that they need to use the corresponding value ratio (multiplier) for comparison and finally value the valued entity on this basis.

There are not many transaction cases in the market that are comparable to the valued entity in terms of main business and business size, and the conditions on complete data and information required for the valuation under the market approach cannot be satisfied. Therefore, the transaction case comparison method is not applicable to the valuation. In comparison, the information disclosed by listed companies is sufficient and regular, which can meet the information requirements of the listed company comparison method. Therefore, the listed company comparison method is adopted for the valuation. The basic steps are as follows:

1. Selection of comparable listed companies

(1) Selection of the capital market

The PRC securities market is selected as the capital market for the selection of comparable listed companies, provided that the basic information of the appraisee (including the appraisee and its relevant equity position, such as the nature of the enterprise, capital scale, business scope, business scale, market share and growth potential) and the development of the industry in the world are explicit.

(2) Selection of quasi-comparable listed companies

After the capital market is confirmed, comparable listed companies engaged in the same industry, the same or similar business as that of the valued entity and having main businesses in the area which is the same as or near the area of the main business of the appraisee are selected as quasi-comparable listed companies.

(3) Selection of comparable listed companies

Detailed research and analysis of specific conditions of comparable listed companies, including the main business scope, main target market, business structure, business model, company size, profitability, and operating stage are conducted. Through the analysis and comparison of the business and financial conditions of these quasi-comparable listed companies, the comparable listed companies are selected.

2. Analysis and adjustment of business, financial data and information

The business and financial position of the selected comparable listed companies are compared with those of the appraisee, analyzed, and adjusted as necessary. Firstly, information on comparable listed companies, such as their announcements, industry statistics, research reports of research institutions, is collected. The above market, business and financial information obtained from public channels is analyzed and adjusted, so as to make the financial information of the comparable enterprises as accurate and objective as possible, and comparable with the financial information of the appraisee.

3. Selection, calculation and adjustment of the value ratio

After analyzing and adjusting the business and financial information of comparable listed companies, it is necessary to select an appropriate value ratio and carry out necessary analysis and adjustment of the value ratio according to the above work.

4. Application of value ratio

After calculating and adjusting the value ratio of comparable listed companies, it is multiplied by corresponding financial data or indicators of the appraisee to arrive at the required equity or corporate value.

5. Other factor adjustments

Other factor adjustments include adjustments of the value of non-operating assets, cash and cash equivalents and interest-bearing debt.

VIII. IMPLEMENTATION OF VALUATION PROCEDURES

From 25 August 2021 to 10 December 2021, the appraiser valued the assets and liabilities of the appraisee. The implementation of the main valuation procedures is as follows:

(I) Acceptance of the engagement

On 25 August 2021, our company reached an agreement with the consignor on the basic matters of the valuation business, such as the valuation purpose, the appraisee, the scope of valuation and the valuation benchmark date, and the rights and obligations of each party, and developed a corresponding valuation plan through negotiation with the consignor.

(II) Preliminary preparation

1. After the engagement was accepted, the project team worked out a specific valuation plan and formed a valuation team according to the valuation purpose, characteristics of the appraisee and schedule. Meanwhile, according to the actual needs of the project, a list of information required for the valuation and a declaration form were prepared.

(III) On-site inspection

The Valuers conducted necessary thorough checking of the assets and liabilities of the valuation object from 2 September 2021 to 18 September 2021 and conducted necessary investigations of the operational management of the valued entity.

1. Verification of assets

(1) Guidance to the valued entity on filling and preparation of information to be provided to the valuation agency

The Valuers guided the financial and assets management personnel of the valued entity on filling the "Asset Valuation Schedules" provided by the valuation agency and its filling requirements, information list on the basis of voluntary asset inspection, and accurately filled in details of assets included in the scope of valuation while collected and prepared property ownership certificate documents and documents that reflect performance, status, economic and technical indicators, etc.

(2) Preliminary review and improvement of the Asset Valuation Schedules filled in by the valued entity

The Valuers understood the detailed status of the specific assets included in the valuation scope by reviewing the relevant information, then carefully reviewed various "Asset Valuation Schedules" and checked whether there were incomplete, mistaken or unclear asset items, as well as any omissions in the "Asset Valuation Schedules" based on experience and information obtained while gave feedback to the appraised entity on improvement of the "Asset Valuation Schedules".

(3) On-site inspection

Based on the types, quantities and distribution of assets involved in the appraisal object, the Valuers conducted on-site inspection of various assets based on the relevant requirements of assets valuation standards with the cooperation of relevant personnel of the valued entity and adopted various inspection methods according to different nature and features of assets.

Firstly, the appraiser understood the accounting system and internal management system implemented by the enterprise, and reviewed the implementation of internal systems of the enterprise; and together with relevant personnel of the consignor, checked the assets to be

valued and declared on the declaration form for check and valuation, so as to confirm the existence and integrity of these assets (or liabilities), and verified the ownership of the assets to be valued and the authenticity of relevant liabilities, so as to avoid repetition, omission and misrepresentation.

Based on the balance sheet as at the valuation benchmark date provided by the valued entity, items in the declaration form for valuation of assets and liabilities completed by the valued entity were the main items subject to verification, and were checked on a one-by-one basis, without omission or repetition.

1. The main method of checking and verifying physical assets is to check whether the declaration form for valuation is consistent with accounts and physical items, and ascertain the reasons in case of any inconsistency, and properly record the check and adjustments. Key processes: Firstly, the appraiser checks the balance sheet, general ledger and subsidiary ledger; checks the balance sheet and relevant declaration forms for valuation, and ascertains the reasons in case of any inconsistency, and keeps a record properly; secondarily, the appraiser checks whether the assets actually owned by the valued entity are consistent with relevant declaration forms for asset valuation, and carries out a valuation based on assets actually owned;

2. The methods for checking the rights and obligations assets such as creditor's rights and debts are checking, analysis, confirmation, substitution test and judgment; checking reconciliation statements (general ledger, balance sheet, and declaration form); analyzing the aging and business dealings, sending confirmations or carrying out substitution tests, judging the authenticity of the contents and the correspondence of rights and obligations, and determining the possibility of recovery of debts; analyzing the requirements on the authenticity of rights and obligations.

   The specific verification method for each asset and liability is as follows:

Bank deposits: The appraiser checks bank deposit accounts of the valued entity, collects bank statements and bank balance reconciliation statements of each bank account, and verifies the authenticity of accounts-in-transit. The appraiser determines whether the bank balance after reconciliation of accounts-in-transit is consistent with the bank statement balance.

Receivables: On the basis of checking the consistency between the subsidiary ledger, the general ledger and the declaration form for valuation, the appraiser conducts a selective examination of relevant original accounting vouchers, such as sales invoices, shipping note and other information, for large or long-aged payments, and sends confirmations to debtors based on the principle of materiality.

Other non-current assets, right-of-use assets, etc.: The appraiser checks relevant contracts and consults relevant vouchers.

Long-term equity investments:

The following measures are adopted for checking:

A. The appraiser collects investment contracts, agreements, articles of association, business licenses of investees, capital verification reports and accounting statements as at the valuation benchmark date in relation to other long-term investments, and determines the existence of long-term investments based on such documentary evidence.

B. The appraiser checks contract documents or relevant information of investees to determine the correctness of long-term investment amounts and investment proportions.

C. The appraiser investigates and understands the control over the investee, and classifies long-term investments into controlling and non-controlling long-term investments, so as to adopt appropriate methods for valuation respectively.

Physical assets: The appraiser checks physical assets of various types mainly through counting, survey, analysis and judgment; checks whether accounts, statements and physical items are consistent; collects relevant purchase contracts and invoices, and reviews the maintenance and storage of physical assets.

Liabilities: The appraiser checks liabilities mainly through verification, analysis, confirmation, substitution test and judgment. The appraiser checks the reconciliation statements (general ledger, balance sheet, declaration form for valuation); analyzes the aging and business dealings, reviews loan contracts, sends confirmations or carries out substitution tests, judges the authenticity of the contents and analyzes the correspondence of obligations.

(4) Supplement, modification and improvement of the Asset Valuation Schedules

The Valuers further improved the "Asset Valuation Schedules" based on the results of the on-site inspection and extensive communication with relevant personnel of the valued entity, so that the accounting books and statements were consistent with the actual situation.

(5) Verification of property ownership certificate documents

The Valuers verified the property ownership certificate documents of the assets (such as buildings, vehicles, land, patents and so on) which fall under the scope of the valuation, and requested the company to verify or present relevant explanatory documents on property ownership in the case of incomplete ownership information or ambiguous ownership.

2. Due diligence

In order to fully understand the operation and management and the risk exposure of the valued entity, the Valuers conduct necessary investigations. The main contents of the investigations are as follows:

(1) History, substantial shareholders and shareholding percentage, necessary property rights and operation and management structure of the valued entity;

(2) Management of assets, finance, production and operation of the valued entity;

(3) Operation plan, development planning and forecast financial information of the valued entity;

(4) Valuation and transaction of the valuation object and valued entity in the past;

(5) Macro and regional economic factors affecting the production and operation of the valued entity;

(6) Development and prospect of the industry of the valued entity;

(7) Other relevant information.

(IV) Information collection

The Valuers collected information for the valuation based on the specifics of the valuation project, including information directly obtained from channels such as market, information obtained from relevant parties such as the consignor, and information obtained from government authorities, various professional bodies and other relevant departments, and conducted necessary analysis, conclusion and compilation of the valuation information collected, serving as reference for valuation estimation.

(V) Valuation estimation

The Valuers adopted the formulas and parameters for analysis, calculation and determination based on the specific situation of various types of assets and the chosen valuation approach to arrive at preliminary valuation conclusion. The project manager summed up the preliminary conclusion of the valuation of various assets and prepared report of the preliminary assets valuation.

(VI) Internal audit

According to the requirements of our administrative measures for valuation business process, the project manager completes the preliminary assets valuation report and submits it to the company for internal audit. After completion of the internal audit, the project manager communicates with the consignor or other relevant parties agreed by the consignor on the relevant contents of the assets valuation report, and issues and submits the assets valuation report with reasonable revision based on the feedback.

IX. ASSUMPTIONS OF VALUATION

The assumptions adopted for the analysis and estimations in the Asset Valuation Report are as below:

(I) General assumption

1. It is assumed that there's no material change to China's prevailing laws, regulations, policies and macroeconomic conditions, and there's no material change to the political, economic and environment of the regions in which the parties to this transaction are located;

2. It is assumed that both parties to the transaction of assets traded or intended to be traded in the market rank pari passu with each other, and have the opportunity and time to obtain sufficient market information, and carry out the transaction behavior on a voluntary and rational basis, and can make a rational judgment on the function, use and transaction price of the assets;

3. It is assumed that the asset to be valued will continue to be used according to its current use and methods of use, and that the enterprise continues as a going concern;

4. It is assumed that, after the valuation benchmark date, there are no significant changes in interest rates, exchange rates, tax bases and rates, preferential tax policies, policy-based levy and other matters in relation to the valued entity and each of the subsidiaries other than matters known;

5. It is assumed that the management of the valued entity remains responsible, stable and capable of assuming their duties after the valuation benchmark date;

6. Unless otherwise stated, it is assumed that the company is in full compliance with all relevant laws and regulations;

7. The valuation is subject to the precondition that relevant legal documents, accounting vouchers, account books and other information provided by the valued entity are true, complete, legal and reliable;

8. It is assumed that no force majeure or unforeseeable factors will have a significant adverse impact on the valued entity after the valuation benchmark date.

(II) Special assumptions

1. It is assumed that the accounting policies adopted by the valued entity after the valuation benchmark date are consistent with those adopted in the preparation of the asset valuation report in significant aspects;

2. It is assumed that the business scope and methods of the valued entity after the valuation benchmark date are consistent with the current management methods and standards;

3. It is assumed that the cash inflow of the valued entity is average inflow and the cash outflow is average outflow after the valuation benchmark date;

4. It is assumed that the information disclosed by comparable companies is true, accurate and complete, and does not contain false statements, misrepresentations or material omissions that affect the value judgment;

5. It is assumed that each operation plan and fundraising plan developed by the valued entity can be successfully implemented;

6. It is assumed that the capital gap of the valued entity can be closed by borrowing at the existing interest rate;

7. It is assumed that the production capacity expansion, construction and commissioning plan of the valued entity is successfully implemented on the existing land.

The valuation conclusion of the asset valuation report is tenable on the valuation benchmark date, subject to the above assumptions. If there are significant changes in the above assumptions, the signatory asset appraiser and the valuation organization will not have the responsibility to arrive at different valuation conclusions due to the changes in the assumptions.

X. VALUATION CONCLUSIONS

(I) Valuation results under the income approach

As at the valuation benchmark date, the carrying value of total assets of Hua Hong Semiconductor (Wuxi) Limited was RMB18,774.3843 million; the carrying value of total liabilities was RMB8,015.5362 million; the carrying value of net assets was RMB10,758.8481 million, and the appraised value of total shareholders' equity under the income approach was RMB13,038.5600 million, representing an increase of RMB2,279.7119 million or 21.19%.

(II) Valuation results under the market approach

As at the valuation benchmark date, the carrying value of total assets of Hua Hong Semiconductor (Wuxi) Limited was RMB18,774.3843 million; the carrying value of total liabilities was RMB8,015.5362 million; the carrying value of net assets was RMB10,758.8481 million. The value of total shareholders' equity appraised under the market approach was RMB13,300.5000 million, representing an increase of RMB2,541.6519 million or 23.62%.

(III) Valuation results under the asset-based approach

As at the valuation benchmark date, the carrying value of total assets of Hua Hong Semiconductor (Wuxi) Limited was RMB18,774.3843 million, with an appraised value of RMB19,782.0312 million, representing an increase of RMB1,007.6469 million or 5.37%; the carrying value of total liabilities was RMB8,015.5362 million, with the appraised value of RMB7,067.1629 million, representing an increase of RMB-948.3733 million or -11.83%; the carrying value of net assets was RMB10,758.8481 million, with the appraised value of RMB12,714.8683 million under the asset-based approach, representing an increase of RMB1,956.0202 million or 18.18%.

The specific valuation results of asset-based approach were set out in the following table of summary of valuation results:

Table of Summary of Valuation Result

Unit: RMB0'000

Item		Book Value A	Appraised Value B	Appreciation/ Depreciation C=B-A	Appreciation Rate % D=C/A×100%
I. Current assets	1	352,727.68	354,571.93	1,844.25	0.52
II. Non-current assets	2	1,524,710.74	1,623,631.19	98,920.45	6.49
Of which: Long-term equity investment	3	3,000.00	3,336.09	336.09	11.20

Item		Book Value A	Appraised Value B	Appreciation/ Depreciation C=B-A	Appreciation Rate % D=C/A×100%
Fixed assets	4	959,223.37	1,041,868.66	82,645.29	8.62
Construction in progress	5	444,701.72	432,770.21	-11,931.51	-2.68
Intangible assets	6	32,688.29	60,558.86	27,870.57	85.26
Of which: land use rights	7	26,493.91	32,902.75	6,408.84	24.19
Other non-current assets	8	85,097.36	85,097.36	0.00	0.00
Total assets	9	1,877,438.43	1,978,203.12	100,764.69	5.37
III. Current liabilities	10	413,947.62	319,110.29	-94,837.33	-22.91
IV. Non-current liabilities	11	387,606.00	387,606.00	0.00	0.00
Total liabilities	12	801,553.62	706,716.29	-94,837.33	-11.83
Net assets	13	1,075,884.81	1,271,486.83	195,602.02	18.18

(IV) Valuation conclusions

The value of total shareholders' equity was RMB13,038.5600 million under the income approach and RMB13,300.5000 million under the market approach, representing a difference of RMB261.9400 million or 1.97%. The value of total shareholders' equity was RMB13,038.5600 million under the income approach and RMB12,714.8683 million under the asset-based approach, representing a difference of RMB323.6917 million or 2.55%.

Hua Hong Semiconductor (Wuxi) Limited is principally engaged in the design, development, manufacturing, testing, packaging, sale and technical services of integrated circuit products, and has products mainly including embedded non-volatile memory, discrete devices, analog and power management, logic and radio frequency. Hua Hong Wuxi also has the sole OEM line for 12-inch power devices in China. The core assets of Hua Hong Wuxi are mainly important intangible assets such as process route, enterprise management level, talents and technical team, and self-created goodwill. Most of these intangible assets have no value recorded. Therefore, the asset-based approach cannot fully reflect their market values or the market values of semiconductor and wafer manufacturing enterprises in the current international situation.

The market approach is to analyze and compare various indicators of companies, so as to compare the ratios of the equity or the overall value of companies to one of their profitability indicators, asset indicators or other characteristic indicators, and deduce the ratio multiple that the valued entity should have based on the above ratio multiples, thus arriving at the value of shareholders' equity of the valued entity. The appraisee has limited access to the financial information of comparable companies. There may be uncertain factors such as intangible assets or contingent liabilities that are unique to comparable companies or factors that are difficult to adjust, possibly leading to the risk of a larger divergence between the valuation results of the

listed company comparison method and the actual values of companies. Although various factors of the target company and the comparable listed company are comparatively corrected in the valuation under the market approach, the market price of an equity transaction is significantly affected by various external factors such as macro-market environment, economic policies and relevant information, and there is great uncertainty in the economic, social environment and capital market conditions of the target company at the time of the valuation.

The income approach is mainly to reflect the value of an enterprise from the perspective of net cash flows from future operating activities of the enterprise, in consideration of the future profitability of the enterprise, and subject to factors including the future cash flows, operating conditions of the enterprise and its ability to cope with asset quality risks. With the strong comprehensive profitability, the enterprise can achieve stable cash flow growth. If there is no significant change in future business scope and business model, the enterprise can make profits continuously. According to the understanding and analysis of the appraiser, the future incomes of the enterprise can be reasonably predicted and the corresponding risks can be objectively estimated; in other words, both future incomes and risks can be reasonably quantified.

The income approach is a method that calculates the appraised value on the basis of predicting the future incomes of an enterprise. It considers not only the impact of factors, including whether segment assets are reasonably and fully utilized in the enterprise and whether segment assets jointly make their due contribution, on the value of total shareholders' equity of the enterprise, but also the impact of preferential policies for the enterprise, its customer resources, internal control management, core technology, industry competitiveness, management level, human resources, element synergy and other factors on the value of total shareholders' equity. The main parameters of the forecast under the income approach are consistent with the situation inferred based on the valuation assumptions. The valuation procedures are fully implemented. There is sufficient and reasonable basis for the forecast of future incomes. The history, current situation and future of the industry segments and the market segments are rigorously analyzed, and the forecast is in line with the law of the market. Therefore, the valuation results under the income approach can well reflect the expected profitability and the value of shareholders' equity of the enterprise.

The valuation results under the income approach are more reasonable, considering that the equity value in the eyes of rational investors is estimated based on the expected cash flow returns to investors in the future and investors pay more attention to the future operating conditions and profitability of the appraisee, and in view of the purpose of the valuation.

Based on the above analysis, the valuation conclusion of the asset valuation report is the valuation result under the income approach, i.e., the appraised value of total shareholders' equity of Hua Hong Semiconductor (Wuxi) Limited being RMB13,038.5600 million.

Due to the limitation of objective conditions, the asset valuation report does not consider the impact of premium or discount that may arise due to control or lack of control over the value of the appraisee.

XI. EXPLANATIONS ON SPECIAL MATTERS

It was discovered in the course of valuation that the following matters may affect the valuation conclusion; however, they are beyond the evaluation and estimation of the Valuers by virtue of the standard of valuation practice and professional competence:

(I) According to the Asset Appraisal Law, relevant valuation standards and the Guiding Opinions on Legal Ownership of Asset Valuation Objects, the consignor and the relevant parties shall be responsible for the truthfulness, completeness and legality of the ownership certificates, financial accounting information and other information provided by it for assets valuation purpose. The purpose of assets valuation is to estimate the value of the subject of assets valuation and thereby express professional opinions, and it is beyond the working scope of Valuers to confirm or express an opinion on the legal ownership of the subject of assets valuation. The Valuers shall not provide guarantees for the legal ownership of the subject of assets valuation.

(II) In the Asset Valuation Report, all tables or textual expressions are denominated in RMB ten thousands, and any difference between the total amount and the sum of the individual sub-values is due to rounding off.

(III) The valuation is conducted with reference to the Audit Report (Ernst & Young Hua Ming (2021) Zhuan Zi No.61417533-B01) and the Audit Report (Ernst & Young Hua Ming (2021) Zhuan Zi No.61417533-B02) issued by Ernst & Young Hua Ming LLP on 11 October 2021 and 10 December 2021 respectively. The asset appraiser analyzed and made a judgment according to the requirements under the adopted valuation approach on the use of financial statements, but it is not the responsibility of the asset appraiser to express professional opinions on whether relevant financial statements give a true and fair view of the financial position as at the valuation benchmark date and the results of operations and cash flows for the period.

(IV) Special Description of Nature and Amounts of Matters Including Guarantee/Lease/Contingent Liabilities (Contingent Assets) and Relationship with the Appraisee, and Possible Impact of the Matters on Valuation Conclusions;

Matter I: On 30 June 2021, Hua Hong Semiconductor (Wuxi) Limited obtained bank borrowings of RMB3,876,060,000.00, secured by mortgage of houses and buildings of RMB981,645,366.07 and machinery equipment of RMB6,785,109,430.02 in fixed assets, construction in progress of RMB4,086,933,200.75 and land use rights of RMB264,939,123.26 in intangible assets.

Matter II: On 31 December 2020, Hua Hong Semiconductor (Wuxi) Limited obtained bank borrowings of RMB3,262,450,000.00, secured by mortgage of houses and buildings of RMB1,002,024,322.86 and machinery equipment of RMB4,039,636,808.63 in fixed assets, construction in progress of RMB3,226,714,638.67 and land use rights of RMB267,782,834.78 in intangible assets.

The above external mortgages may affect relevant assets but are difficult to consider in the valuation. The valued entity undertakes that, as at the valuation benchmark date, there are no other contingent matters including mortgage and pledge of assets, external guarantee, pending litigation, material financial commitment, other than the above matters.

The users of the Asset Valuation Report shall pay attention to the impact of above special matters on the valuation conclusion.

XII. RESTRICTIONS ON THE USE OF THE ASSET VALUATION REPORT

(I) The scope of the use of the Asset Valuation Report

1. The users of the Asset Valuation Report shall be the consignor, other shareholders of the valued entity and other report users stipulated by laws and regulations.

2. The valuation conclusion disclosed by Asset Valuation Report is only valid for the corresponding economic behavior of the project.

3. The effective term for the use of the valuation result of the Asset Valuation Report shall be one year from the Valuation Benchmark Date. The consignor or other users of the Asset Valuation Report shall use the report within the effective term of the valuation result as stated.

4. The assets valuation agency and its professional asset valuers shall not provide the contents of the Asset Valuation Report to a third party or make it available to public without the written permission of the consignor, except as otherwise provided for by laws and administrative regulations.

5. The contents of the Asset Valuation Report shall not be extracted, quoted or disclosed in the media without the consent from the asset valuation institute, except as otherwise agreed by laws, administrative regulations and other relevant parties.

(II) The assets valuation agency and its professional asset valuers take no responsibility if the consignor or other users of the Asset Valuation Report fail to use the Asset Valuation Report in accordance with the provisions of laws and administrative regulations and the scope of use set out in the Asset Valuation Report.

(III) Except for the consignor, the other users of the Asset Valuation Report as agreed in the Asset Valuation Engagement Contract and the users of the Asset Valuation Report as stipulated in the laws and administrative regulations, no other institution or individual shall be the user of this report.

(IV) Users of the Asset Valuation Report should correctly interpret and use the valuation conclusion, which is not equivalent to the realizable value of the valuation object and should not be considered as a guarantee for the realizable value of the valuation object.

(V) The Asset Valuation Report is a professional report issued by the valuation agency and its asset Valuers in compliance with laws, administrative regulations and asset valuation standards and in accordance with the necessary asset valuation procedures entrusted to them. This Asset Valuation Report may be used officially only after it is filed with state-owned assets supervision and administration agency, and signed by asset Valuers conducting the valuation and stamped by the relevant valuation institution.

XIII. DATE OF THE ASSET VALUATION REPORT

The date of the Asset Valuation Report is 10 December 2021.

Legal representative: Quan Zhongguang

Valuer: Liu Chang Valuer: Zhang Xiaohui

China Enterprise Appraisals Co., Ltd.

10 December 2021

REPORT FROM REPORTING ACCOUNTANTS ON THE DISCOUNTED CASH FLOW FORECAST IN CONNECTION WITH THE VALUATION OF OVERALL SHAREHOLDERS' EQUITY OF HUA HONG SEMICONDUCTOR (WUXI) LIMITED

29 June 2022

To the Directors of Hua Hong Semiconductor Limited

We have been engaged to report on the arithmetical accuracy of the calculations of the discounted cash flow forecast (the "Forecast") on which the valuation dated 10 December 2021 prepared by China Enterprise Appraisals Co., Ltd. in respect of overall shareholders' equity of Hua Hong Semiconductor (Wuxi) Limited as at 30 June 2021 is based. The valuation is set out in the announcement of Hua Hong Semiconductor Limited (the "Company") dated 29 June 2022 (the "Announcement"). The valuation based on the Forecast is regarded by The Stock Exchange of Hong Kong Limited as a profit forecast under paragraph 14.61 of the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited (the "Listing Rules").

Directors' responsibilities

The directors of the Company (the "Directors") are solely responsible for the Forecast. The Forecast has been prepared using a set of bases and assumptions (the "Assumptions"), the completeness, reasonableness and validity of which are the sole responsibility of the Directors. The Assumptions are set out on Appendix I to the Announcement.

Our Independence and Quality Control

We have complied with the independence and other ethical requirements of the *Code of Ethics for Professional Accountants* issued by the Hong Kong Institute of Certified Public Accountants ("HKICPA"), which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

Our firm applies Hong Kong Standard on Quality Control 1 *Quality Control for Firms that Perform Audits and Reviews of Financial Statements, and Other Assurance and Related Services Engagements*, and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Reporting Accountants' responsibilities

Our responsibility is to express an opinion on the arithmetical accuracy of the calculations of the Forecast based on our work. The Forecast does not involve the adoption of accounting policies.

We conducted our engagement in accordance with Hong Kong Standard on Assurance Engagements 3000 (Revised) *Assurance Engagements Other Than Audits or Reviews of Historical Financial Information* issued by the HKICPA. This standard requires that we plan and perform our work to obtain reasonable assurance as to whether, so far as the arithmetical accuracy of the calculations are concerned, the Directors have properly compiled the Forecast in accordance with the Assumptions adopted by the Directors. Our work consisted primarily of checking the arithmetical accuracy of the calculations of the Forecast prepared based on the Assumptions made by the Directors. Our work is substantially less in scope than an audit conducted in accordance with Hong Kong Standards on Auditing issued by the HKICPA. Accordingly, we do not express an audit opinion.

We are not reporting on the appropriateness and validity of the Assumptions on which the Forecast are based and thus express no opinion whatsoever thereon. Our work does not constitute any valuation of the Target. The Assumptions used in the preparation of the Forecast include hypothetical assumptions about future events and management actions that may or may not occur. Even if the events and actions anticipated do occur, actual results are still likely to be different from the Forecast and the variation may be material. Our work has been undertaken for the purpose of reporting solely to you under paragraph 14.62(2) of the Listing Rules and for no other purpose. We accept no responsibility to any other person in respect of our work or arising out of or in connection with our work.

Opinion

Based on the foregoing, in our opinion, so far as the arithmetical accuracy of the calculations of the Forecast is concerned, the Forecast has been properly compiled in all material respects in accordance with the Assumptions adopted by the Directors.

Yours faithfully,

Ernst & Young
Certified Public Accountants
Hong Kong

To: Listing Division
The Stock Exchange of Hong Kong Limited
12th Floor
Two Exchange Square
8 Connaught Place
Central
Hong Kong

29 June 2022

Dear Sirs or Madams,

Company: Hua Hong Semiconductor Limited (the "Company")

Re: Profit Forecast – Letter of Confirmation as required under Rule 14.62(3) of the Listing Rules

We refer to the announcement of the Company dated 29 June 2022 (the "**Announcement**").

Capitalised terms used herein shall have the same meanings as those defined in the Announcement unless otherwise defined.

We also refer to the Valuation Report prepared by the Valuer based on the income approach, which constitutes a profit forecast under Rule 14.61 of the Listing Rules.

The Board has reviewed the bases and assumptions of the valuation prepared by the Valuer in respect of the shareholders' equity in Hua Hong Wuxi as of 30 June 2021. The Board has also considered the report dated 29 June 2022 issued by Ernst & Young, the auditor of the Company, confirming that, so far as the arithmetical accuracy of the calculations of the discounted cash flows forecast (the "**Forecast**") on which the valuation is based is concerned, the Forecast has been properly compiled in all material respects in accordance with the assumptions set out in the Valuation Report.

On the basis of the foregoing, we are of the opinion that the valuations prepared by the Valuer have been made after due and careful enquires.

By order of the Board
Hua Hong Semiconductor Limited
Mr. Suxin Zhang
Chairman and Executive Director

1. RESPONSIBILITY STATEMENT

This circular, for which the Directors collectively and individually accept full responsibility, includes particulars given in compliance with the Listing Rules for the purpose of giving information with regard to the Company. The Directors, having made all reasonable enquiries, confirm that to the best of their knowledge and belief the information contained in this circular is accurate and complete in all material respects and not misleading or deceptive, and there are no other matters the omission of which would make any statement herein or this circular misleading.

2. DIRECTORS' AND CHIEF EXECUTIVES' INTERESTS AND SHORT POSITIONS IN SHARES, UNDERLYING SHARES AND DEBENTURES

As at the Latest Practicable Date, the interest or short position of the Directors and chief executives of the Company in the Shares, underlying Shares and debentures of the Company or its associated corporations (within the meaning of Part XV of the SFO) which were (i) required to be notified to the Company and the Stock Exchange pursuant to Divisions 7 and 8 of Part XV of the SFO (including interest and/or short positions which they were taken or deemed to have under such provisions of the SFO); (ii) required, pursuant to section 352 of the SFO, to be entered in the register; or (iii) required, pursuant to the Model Code, to be notified to the Company and the Stock Exchange, are as follows:

Name of Director/ Chief Executive	**Nature of interest**	**Number of underlying shares held in long position** *(Note 1)*	**Approximate percentage of interests as at the Latest Practicable Date**
Mr. Junjun TANG	Beneficial owner	437,500	0.03%

Note:

(1) Long position in the underlying shares of the Company under share options granted pursuant to the share option scheme adopted by the Company on 1 September 2015. The exercisable price per Share is HK$18.400. As of the Latest Practicable Date, Mr. Junjun TANG had not exercised any of such share options.

Save as disclosed above, so far as known to the Directors, as at the Latest Practicable Date, none of the Directors or chief executives of the Company or any of their associates had or was deemed to have any interest or short position in the Shares, underlying Shares and debentures of the Company and its associated corporations as defined in Part XV of the SFO, which were (i) required to be notified to the Company and the Stock Exchange pursuant to Divisions 7 and 8 of Part XV of the SFO (including interest and/or short positions which they

were taken or deemed to have under such provisions of the SFO); (ii) required, pursuant to section 352 of the SFO, to be entered in the register; or (iii) required, pursuant to the Model Code, to be notified to the Company and the Stock Exchange.

3. SUBSTANTIAL SHAREHOLDERS' INTEREST

As at the Latest Practicable Date, so far as was known to the Directors, the persons or entities, other than a Director or chief executive of the Company, who had an interest or a short position in the Shares or the underlying shares of the Company which would fall to be disclosed to the Company under the provisions of Divisions 2 and 3 of Part XV of the SFO or which were recorded in the register required to be kept by the Company under section 336 of the SFO, or as otherwise notified to the Company and the Stock Exchange were as follows:

Name of substantial Shareholder	**Nature of interest**	**Number of Shares directly or indirectly held**	**Approximate percentage of interests** *(%)*
Shanghai Hua Hong International, Inc. ("**Hua Hong International**") *(Note 1)*	Legal and beneficial owner	347,605,650	26.70
Shanghai Huahong (Group) Co., Ltd. ("**Huahong Group**") *(Note 1)*	Legal and beneficial owner	347,605,650	26.70
Sino-Alliance International, Ltd. ("**Sino-Alliance International**") *(Note 2)*	Legal and beneficial owner	188,961,147	14.51
Shanghai Alliance Investment Ltd. ("**SAIL**") *(Note 3)*	Legal and beneficial owner	188,961,147	14.51
Xinxin (Hongkong) Capital Co., Limited *(Note 4)*	Legal and beneficial owner	178,705,925	13.72
Xun Xin (Shanghai) Investment Co., Ltd. *(Note 4)*	Legal and beneficial owner	178,705,925	13.72
China IC Fund	Legal and beneficial owner	178,705,925	13.72

Notes:

1. Hua Hong International is a wholly-owned subsidiary of Huahong Group.

   Mr. Suxin Zhang, the Chairman and an executive Director of the Company, is currently the Chairman and Secretary of the Communist Party of Huahong Group, and the Chairman, Chief Executive Officer and President of Hua Hong International. Ms. Jing Wang, a non-executive Director of the Company, is currently the President, Deputy Secretary of the Communist Party and a director of Huahong Group, and a director of Hua Hong International.

2. Including 3,084 shares held in escrow by Sino-Alliance International pursuant to an escrow arrangement. As at Latest Practicable Date, Sino-Alliance International directly held 160,545,541 shares and indirectly held 28,415,606 shares in the Company through its wholly-owned subsidiary.

3. SAIL indirectly held beneficial ownership in the Company through two wholly-owned subsidiaries, including Sino-Alliance International.

4. Xinxin (Hongkong) Capital Co., Limited is a wholly-owned subsidiary of Xun Xin (Shanghai) Investment Co., Ltd., which is in turn a wholly-owned subsidiary of China IC Fund.

Save as disclosed above, as at the Latest Practicable Date, so far as was known to the Directors, the Company had not been notified by any persons (other than a Director or chief executive of the Company) who had an interest or a short position in the Shares or the underlying shares of the Company which would fall to be disclosed to the Company under the provisions of Divisions 2 and 3 of Part XV of the SFO or which were recorded in the register required to be kept by the Company under section 336 of the SFO, or as otherwise notified to the Company and the Stock Exchange.

4. DIRECTORS' OTHER INTERESTS

(a) Save as disclosed in this circular, none of the Directors was materially interested, directly or indirectly, in any contract or arrangement entered into by any member of the Group subsisting as at the Latest Practicable Date which was significant in relation to the business of the Group.

(b) None of the Directors has any direct or indirect interest in any assets acquired or disposed of by or leased to any member of the Group or is proposed to be acquired or disposed of by or leased to any member of the Group since 31 December 2021, being the date to which the latest published audited accounts of the Group were made up.

5. DIRECTORS' SERVICE CONTRACTS

As at the Latest Practicable Date, none of the Directors had entered into, or proposed to enter into, any service contract with the Company or any of its subsidiaries which is not expiring or determinable by the Group within one year without payment of compensation (other than statutory compensation).

6. COMPETING INTERESTS

As at the Latest Practicable Date, as far as the Directors were aware of, none of the Directors and their respective close associates (as defined under the Listing Rules) was interested in any business which competes or was likely to compete, either directly or indirectly, with the business of the Company or the Group.

7. EXPERT'S QUALIFICATION AND CONSENT

The following are the qualifications of the experts who have given opinion or advice which is contained in this circular:

Expert	Qualification
China Enterprise Appraisals Co., Ltd.	Qualified Asset Valuer in the PRC
Ernst & Young	Certified Public Accountant
Gram Capital Limited	A corporation licensed to carry out type 6 (advising on corporate finance) regulated activity as defined under the SFO

Each of the above professional advisors has given and has not withdrawn its written consent to the issue of this circular with the inclusion herein of its letter and references to its name, in the form and context in which they respectively appear.

As at the Latest Practicable Date, each of the above professional advisors did not have any shareholding, directly or indirectly, in any member of the Group or the right (whether legally enforceable or not) to subscribe for or to nominate persons to subscribe for shares in any member of the Group.

As at the Latest Practicable Date, each of the above professional advisors did not have any interest, direct or indirect, in any assets which since 31 December 2021, the date to which the latest published audited financial statements of the Company were made up, had been acquired or disposed of by or leased to any member of the Group, or are proposed to be acquired or disposed of by or leased to any member of the Group.

8. NO MATERIAL ADVERSE CHANGE

As at the Latest Practicable Date, the Directors were not aware of any material adverse change in the financial or trading position of the Group since 31 December 2021, being the date to which the latest published audited financial statements of the Group were made up.

9. DOCUMENTS ON DISPLAY

Copies of the following documents are published on the websites of the Stock Exchange (http://www.hkexnews.hk) and the Company (www.huahonggrace.com) during the period of 14 days from the date of this circular:

(a) the Capital Injection Agreement;

(b) the letter from the Board dated 9 August 2022 to the Shareholders, the text of which is set out on pages 4 to 19 of this circular;

(c) the letter from the Independent Board Committee dated 9 August 2022 to the Shareholders, the text of which is set out on pages 20 to 21 of this circular;

(d) the letter from the Independent Financial Advisor dated 9 August 2022 to the Shareholders, the text of which is set out on pages 22 to 37 of this circular;

(e) the letter from Ernst & Young dated 29 June 2022 in relation to the profit forecast based on discounted cash flows as set out in the Valuation Report, the text of which is set out on pages 132 to 133 of this circular;

(f) the letter from the Board dated 29 June 2022 in relation to the profit forecast based on discounted cash flows as set out in the Valuation Report, the text of which is set out on pages 134 of this circular;

(g) the written consents referred to in the section headed "Expert's Qualification And Consent" in this appendix; and

(h) this circular.

10. GENERAL

(a) The company secretary of the Company is Ms. Sui Har Lee, who is a practicing solicitor admitted in the Hong Kong.

(b) The registered office of the Company is at Room 2212, Bank of America Tower, 12 Harcourt Road, Central, Hong Kong.

(c) The Hong Kong branch share registrar and transfer office of the Company is Tricor Investor Services Limited, at Level 54, Hopewell Centre, 183 Queen's Road East, Hong Kong (New Address with effect from 15 August 2022: 17/F, Far East Finance Centre, 16 Harcourt Road, Hong Kong).

(d) The English text of this circular shall prevail over the Chinese text in the case of inconsistency.

HUA HONG SEMICONDUCTOR LIMITED
華虹半導體有限公司

(Incorporated in Hong Kong with limited liability)

(Stock Code: 1347)

NOTICE OF EXTRAORDINARY GENERAL MEETING

Notice is hereby given that an extraordinary general meeting ("**EGM**") of Hua Hong Semiconductor Limited (the "**Company**") will be held on 29 August 2022 at 2:00 p.m. with the combination of a physical meeting at Kowloon Shangri-La Hong Kong, 64 Mody Road, Kowloon, Hong Kong and a virtual meeting online to consider and, if thought fit, pass (with or without modification) the following resolution as an ordinary resolution:

1. "**THAT,**

   (a) the Capital Injection Agreement dated 29 June 2022 entered into among Hua Hong Semiconductor (Wuxi) Limited ("**Hua Hong Wuxi**"), the Company, Shanghai Huahong Grace Semiconductor Manufacturing Corporation ("**HHGrace**"), Wuxi Xi Hong Lian Xin Investment Co., Ltd. (無錫錫虹聯芯投資有限公司) (the "**Wuxi Entity**"), China Integrated Circuit Industry Investment Fund Co., Ltd. (國家集成電路產業投資基金股份有限公司), China Integrated Circuit Industry Investment Fund (Phase II) Co., Ltd. (國家集成電路產業投資基金二期股份有限公司) ("**China IC Fund II**") in relation to increasing the registered capital of Hua Hong Wuxi from US$1,800 million to approximately US$2,536.85 million, where each of the Company, HHGrace, the Wuxi Entity and China IC Fund II will contribute approximately US$177.78 million, US$230.22 million, US$160 million and US$232 million, respectively as capital injection into Hua Hong Wuxi, on the basis that US$1 increase in registered capital corresponds to US$1.0857 of Capital Injection and the transactions contemplated thereby be and are hereby approved, confirmed and ratified;

   (b) any director of the Company be and is hereby authorized to do all such acts and things, to sign and execute documents or agreements or deeds on behalf of the Company and to do such other things and to take all such actions as he or she considers necessary, appropriate, desirable or expedient for the purposes of giving effect to or in connection with the Capital Injection Agreement and any transactions contemplated thereunder, and to agree to such variation, amendments or waiver of matters relating thereto as are, in the opinion of such director, in the interests of the Company and its shareholders as a whole."

By Order of the Board
Hua Hong Semiconductor Limited
Mr. Suxin Zhang
Chairman and Executive Director

Shanghai, PRC, 9 August 2022

Notes:

1. In light of the ongoing COVID-19 pandemic, the Company will conduct a hybrid Extraordinary General Meeting with the combination of a physical meeting and a virtual meeting online. Shareholders will have the option of joining the Extraordinary General Meeting either (a) through the physical meeting at Kowloon Shangri-La Hong Kong, 64 Mody Road, Kowloon, Hong Kong; or (b) through the Internet by using their computer, tablet device or smartphone. Registered Shareholders will be able to attend the Extraordinary General Meeting, vote and submit questions online. Each registered Shareholder's personalized login and access code will be sent to him or her under separate letter.

   Non-registered Shareholders whose Shares are held in the Central Clearing and Settlement System through banks, brokers, custodians or Hong Kong Securities Clearing Company Limited may also be able to attend the Extraordinary General Meeting, vote and submit questions online. In this regard, they should consult directly with their banks, brokers or custodians (as the case may be) for the necessary arrangements.

2. The proposed resolution at the Extraordinary General Meeting will be taken by poll pursuant to the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited (the "**Listing Rules**") and the results of the poll will be published on the websites of Hong Kong Exchanges and Clearing Limited and the Company in accordance with the Listing Rules.

3. A member entitled to attend and vote at the Extraordinary General Meeting is entitled to appoint one or more proxies to attend and on a poll vote instead of him. A proxy need not be a member of the Company. If more than one proxy is appointed, the number of Shares in respect of which each such proxy so appointed must be specified in the relevant form of proxy.

4. In order to be valid, a form of proxy and the power of attorney or other authority (if any) under which it is signed, or a notarially certified copy of such power of authority, must be deposited at the Company's Share Registrar, Tricor Investor Services Limited, at Level 54, Hopewell Centre, 183 Queen's Road East, Hong Kong (if the form of proxy will be deposited before 15 August 2022) or 17/F, Far East Finance Centre, 16 Harcourt Road, Hong Kong (if the form of proxy will be deposited on or after 15 August 2022), or via the designated URL (https://spot-emeeting.tricor.hk) by using the username and password provided on the notification letter sent by the Company on 9 August 2022, not less than 48 hours before the time fixed for holding the Extraordinary General Meeting or any adjourned meeting thereof. In calculating the aforesaid 48 hours period, no account will be taken of any part of a day that is a public holiday. Accordingly, the form of proxy must be delivered not later than 2:00 p.m. on 26 August 2022. Delivery of the form of proxy shall not preclude a Shareholder of the Company from attending and voting in person at the meeting and, in such event, the instrument appointing a proxy shall be deemed to be revoked.

5. Registered Shareholders are requested to provide a valid email address of his or her proxy (except appointment of "The Chairman of the Meeting") for the proxy to receive the login and access code to participate online to the e-Meeting System.

6. For determining the entitlement to attend and vote at the Extraordinary General Meeting, the register of members of the Company will be closed from Wednesday, 24 August 2022 to Monday, 29 August 2022 (both days inclusive), during which period no transfer of Shares in the Company will be registered. In order to qualify for attending and voting at the Extraordinary General Meeting, all transfers, accompanied by the relevant certificates, must be lodged with the Company's share registrar, Tricor Investor Services Limited, at Level 54, Hopewell Centre, 183 Queen's Road East, Hong Kong (if the transfer documents will be lodged before 15 August 2022) or 17/F, Far East Finance Centre, 16 Harcourt Road, Hong Kong (if the transfer documents will be lodged on or after 15 August 2022) by no later than 4:30 p.m. on Tuesday, 23 August 2022. All persons who are registered holders of the Shares on Monday, 29 August 2022, the record date for the Extraordinary General Meeting, will be entitled to attend and vote at the Extraordinary General Meeting.

7. Upon arrival at the venue of the Extraordinary General Meeting, voting slip(s) will be given to every Shareholder present in person (or in the case of a corporation by its authorized representative) or by proxy to cast his/her/its vote(s). Each Shareholder/authorized representative/proxy present in venue will have to access to the e-Meeting System via the QR Code given on the voting slip and cast his/her vote(s) on the e-Meeting System. If registered Shareholders would like to participate online, he/she can log on to the e-Meeting System using his/her personalized login and access code and cast his/her vote(s) on the e-Meeting System. Each Shareholders' proxy authorization and instruction will be revoked if he/she attend in person at the Extraordinary General Meeting or attend via the e-Meeting System. For details, please refer to the Online Meeting User Guide available at the e-Meeting System.

8. In view of the travelling restrictions imposed by various jurisdictions including Hong Kong to prevent the spread of the COVID-19, certain Director(s) may attend the Extraordinary General Meeting through telephone/video conference or similar electronic means.

9. A circular containing further details concerning paragraph 1 in this notice will be sent to all Shareholders of the Company.