

# AMD Joint Venture with THATIC: Economic and National Security Concerns

## Table of Contents

Table of Contents .....	2
Executive Summary and Key Findings .....	7
AMD in China: Background Information .....	12
AMD's Joint Venture with THATIC .....	13
Technologies to Be Licensed .....	15
THATIC Stakeholders .....	16
Profile I: THATIC (天津海光先进技术投资有限公司) .....	18
Key Findings .....	18
Company Profile .....	18
Overview .....	18
Corporate Registration Information for Tianjin Haiguang Advanced Technology Investment Co., Ltd. ....	19
Key Personnel .....	20
Profile II: Institute of Computing Technology of the Chinese Academy of Sciences (中国科学院计算技术研究所) .....	23
Key Findings .....	23
Organization Profile .....	25
Overview .....	25
Corporate Registration Information for Beijing China Academy of Sciences Institute of Computing Technology Source Asset Management Ltd. ....	26
Political or Government Connections .....	26
ICT and China's national security interests .....	26
ICT's interest in foreign computer chip technology .....	27
Customers of Concern .....	27
Defense Industry .....	27
Ministry of State Security .....	28
Key Personnel .....	28
Profile III: Tang Zhimin (唐志敏) .....	29
Overview .....	30
Other Biographical Information and Research .....	31
Summary of Business Roles .....	32
Profile IV: Sugon Information Industry Co., Ltd. (曙光信息产业股份有限公司) .....	33
Key Findings .....	33
Company Profile .....	35

Corporate Registration Information for Sugon Information Industry Co., Ltd.....	35
Political or Government Connections.....	36
Military Connections.....	36
Government Connections.....	36
Customers and Partners of Concern.....	36
Military.....	36
Defense Industry .....	37
Public Security .....	39
Key Personnel .....	39
Senior management.....	39
Profile V: Chengdu Industry Investment Group Co., Ltd. (成都工业投资集团有限公司).....	41
Key Findings.....	41
Company Profile .....	41
Overview .....	41
Corporate Registration and Contact Information for Chengdu Industry Investment Group..	42
Political or Government Connections.....	43
Military Connections.....	43
Government Connections.....	43
Customers of Concern .....	43
Military.....	43
Defense Industry .....	43
Key Personnel .....	44
Partners.....	44
Profile VI: Tianjin Hai Fu Tian Ding Technology Partnership (LP) (天津海富天鼎科技合伙企业 (有限合伙)).....	45
Key Findings.....	45
Company Profile .....	45
Overview .....	45
Corporate Registration and Contact Information for Tianjin Hai Fu Tian Ding Technology Partnership (LP). .....	46
Political or Government Connections.....	47
Military Connections.....	47
Government Connections.....	47
Customers of Concern .....	47

Military.....	47
Defense Industry .....	47
Key Personnel .....	47
Partners.....	47
Profile VII: Sichuan Hongyun Next-Generation Information Technology Venture Capital Fund Partnership (LP) (四川虹云新一代信息技术创业投资基金合伙企业（有限合伙）/ “Hongyun LP”)	49
Key Findings.....	49
Company Profile .....	49
Overview .....	49
Overview of Partners in Hongyun LP .....	51
Corporate Registration Information for Sichuan Hongyun Next-Generation Information Technology Venture Capital Fund Partnership.....	53
Political or Government Connections.....	53
Military Connections.....	53
Government Connections.....	53
Customers of Concern .....	54
Military.....	54
Defense Industry .....	54
Profile VIII: Beijing Zhong Yun Rong Hui Investment Center (LP) (北京中云融汇投资中心（有限合伙）)	55
Key Findings.....	55
Company Profile .....	55
Overview .....	55
Corporate Registration Information for Beijing Zhong Yun Rong Hui Investment Center (LP). .....	59
Political or Government Connections.....	59
Military Connections.....	59
Government Connections.....	59
Customers of Concern .....	59
Military.....	59
Defense Industry .....	59
Profile IX: Tianjin Cheng Bai Equity Investment Partnership (LP) (天津诚柏股权投资合伙企业（有限合伙）)	60
Key Findings.....	60



Company Profile .....	61
Overview .....	61
Corporate Registration Information for Tianjin Cheng Bai Equity Investment Partnership (LP). ....	62
Political or Government Connections .....	62
Military Connections .....	62
Government Connections .....	63
Customers of Concern .....	63
Military .....	63
Defense Industry .....	63
Key Personnel .....	63
Profile X: The Chinese Academy of Sciences Holdings Co, Ltd. (中国科学院国有资产经营有限责任公司) .....	65
Key Findings .....	65
Company Profile .....	66
Overview .....	66
Corporate Registration Information for Chinese Academy of Sciences Holdings. ....	68
Political or Government Connections .....	69
Military Connections .....	69
Government Connections .....	69
Customers of Concern .....	69
Military .....	69
Defense Industry .....	69
Key Personnel .....	70
Board and senior management .....	70
Profile XI: Chengdu Hi-Tech Investment Group Co., Ltd. (成都高新投资集团有限公司) .....	71
Key Findings .....	71
Company Profile .....	72
Overview .....	72
Corporate Registration Information for Chengdu Hi-Tech Investment Group. ....	73
Political or Government Connections .....	73
Military Connections .....	73
Government Connections .....	73
Customers of Concern .....	73

Military.....	73
Defense Industry .....	74
Key Personnel .....	74
Board and senior management .....	74
Profile XII: Chengdu Lan Hai Qing Zhou Company Management Partnership (LP) (成都蓝海轻舟企业管理合伙企业（有限合伙）).....	75
Key Findings.....	75
Company Profile .....	75
Overview .....	75
Corporate Registration Information for Chengdu Lan Hai Qing Zhou Company Management Partnership.....	76
Political or Government Connections .....	76
Military Connections.....	76
Government Connections.....	76
Customers of Concern .....	76
Military.....	76
Defense Industry .....	76
Key Personnel .....	76
Partners.....	77
Profile XIII: Tianjin Binhai Technology New Area Asset Management Co., Ltd. (天津滨海高新区资产管理有限公司).....	78
Key Findings.....	78
Company Profile .....	78
Overview .....	78
Corporate Registration Information for Tianjin Binhai Technology New Area Asset Management.....	79
Political or Government Connections .....	79
Military Connections.....	79
Government Connections.....	79
Customers of Concern .....	79
Military.....	79
Defense Industry .....	79
Key Personnel .....	80
Board Members and Management .....	80

## Executive Summary and Key Findings

This report assesses the recent licensing deal between Advanced Micro Devices (AMD) and the Chinese company Tianjin Haiguang Advanced Technology Investment Co., Ltd. (THATIC). To date AMD has not been forthcoming on specifics of the deal, including what specific technologies will be licensed to THATIC, as well as safeguards to mitigate the risks of diversion of AMD technology to end-users of concern. To examine the AMD-THATIC deal in more detail, this investigation focuses on THATIC and its relevant stakeholders, specifically searching for risks for diversion to military end-users. Based on this investigation, key findings for the relevant entities are the following:

### THATIC (天津海光先进技术投资有限公司)

- Tianjin Haiguang Advanced Technology Investment Co., Ltd. (THATIC) is a computer technology joint venture sponsored by the Chinese Academy of Sciences and Sugon Information Industry, a leading Chinese supercomputer developer.
- THATIC and AMD recently set up two joint venture subsidiaries in February 2016 to support collaboration on x86 server technology.
- The two subsidiaries are both located in Chengdu and are named Chengdu Haiguang Microelectronic Technology and Chengdu Haiguang Integrated Circuit Design Company, respectively.
- AMD is represented on the board of directors at THATIC by at least two AMD vice presidents, Harry Allen Wolin and Shantnu Sharma.

### Institute of Computing Technology of the Chinese Academy of Sciences

- Chinese media has described ICT as the driving force behind the partnership between THATIC and AMD. Analysis of ICT's ties to relevant stakeholders support this assessment.
- ICT describes one of its chief purposes as national defense construction through the development of advanced technology.
- ICT possesses a Micro-Processing Research Center tasked with developing China's own "independent and controllable" computer processors in support of China's 863 Program (863 计划).
- ICT is a registered supplier on China's Weapons Equipment Information Network (WEAIN), a PLA and national defense procurement portal.
- There is evidence of long-standing interest on the part of ICT in developing computer systems, and system instruction architecture in particular, for reasons of national defense.
- ICT's current head has described cooperation with foreign firms and the absorption of advanced technology from abroad as the "high speed rail" method for developing China's indigenous computer industry.

### Tang Zhimin

- Tang Zhimin heads THATIC as CEO and Chairman, and is affiliated with three THATIC shareholders that hold 53.28% of the company.
- Tang Zhimin is a leading researcher and expert on chip design and high performance computing, including for processors used in PLA equipment.

- As of 2014 Tang was the CTO of Sugon Information Industry Co., Ltd., a registered military supplier profiled on page 17.
- Tang is the CEO for both joint ventures between THATIC and AMD.
- The graphic below displays Tang's positions with THATIC and relevant institutions.

#### **Sugon Information Industry Co., Ltd. (曙光信息产业股份有限公司)**

- Sugon Information Industry (Sugon, formerly known as Dawning) holds 26.46% of THATIC's shares, and is a key source of personnel.
- Sugon is China's leading developer of high performance supercomputers and a leader in China's cloud computing initiatives. It receives substantial support from the Chinese Academy of Sciences (CAS) and the 863 Program (863 计划). The 863 Program is a national research program managed by the Ministry of Science and Technology with significant input and cooperation from the People's Liberation Army (PLA).
- Sugon develops hardware and software products for the PLA, defense industry, and public security services. Its website states explicitly that "making contributions to China's national defense and security is the fundamental mission of Sugon."
- Sugon is registered as a military supplier of servers and desktop computers, and in June 2016 was awarded two contracts from the Ordnance Technology Research Institute of the PLA Ordnance Engineering College for Local Area Network hardware equipment, industrial personal computers, and data protection software worth RMB 7.64 million in total.
- Sugon has provided numerous IT products and solutions to Chinese domestic security agencies and the Chinese judicial system.
- In 2015, Sugon announced plans to partner with 100 Chinese cities to build cloud computing centers over the next five years. Plans call for partnering with local governments on projects that will provide data sharing and analytics platforms for government data.
- Sugon's Dawning high-performance computing systems have been used by the Chinese space program for applications including the Shenzhou manned space program and Chang'e lunar landing program.

#### **Chengdu Industry Investment Group Co., Ltd. (成都工业投资集团有限公司)**

- Chengdu Industry Investment Group holds 18.90% of THATIC shares.
- This entity is a large, state-owned investment corporation established in August 2001.<sup>1</sup> It has been called "the most important financial platform in the city of Chengdu."<sup>2</sup>
- Chengdu Industry Investment Group is closely integrated with the Chengdu municipal government and the Chinese Communist Party in Sichuan province.
- In 2014, a former chairman of Chengdu Industry Investment Group was sentenced to life in prison for taking bribes in connection with his work.

#### **Tianjin Hai Fu Tian Ding Technology Partnership (LP) (天津海富天鼎科技合伙企业 (有限合伙))**

<sup>1</sup> [http://www.cdii.com.cn/itemIndex.json?accesspage=itemIndex&item\\_id=jituanjieshao](http://www.cdii.com.cn/itemIndex.json?accesspage=itemIndex&item_id=jituanjieshao), accessed August 16, 2016.

<sup>2</sup> <http://www.voanews.com/a/businessmen-politicians-targeted-in-sichuan-corruption-probe/1852765.html>, accessed August 18, 2016.

- Tianjin Hai Fu Tian Ding Technology Partnership (LP) controls a 17.01% stake in THATIC.
- Tang Zhimin, a researcher at the Chinese Academy of Sciences Institute of Computing Technology, is the lead partner at Tianjin Hai Fu Tian Ding Technology Partnership. Tang and the other two partners, Liu Xinchun and Yang Xiaojun, are said to constitute the core management team for THATIC. They are also involved together in managing several other businesses.

**Sichuan Hongyun Next-Generation Information Technology Venture Capital Fund Partnership (LP) (四川虹云新一代信息技术创业投资基金合伙企业（有限合伙）/ “Hongyun LP”)**

- Hongyun LP controls a 0.89% stake in THATIC.
- Partners in Hongyun LP include Changhong Electronics, a state-owned electronics manufacturer supplying both military and civilian end-users, and the company’s subsidiary Changhong IT.
- Several state-owned industry development and investment holding organizations are also partners in Hongyun LP, including Sichuan Province Technology Transfer Center, Chengdu Tianfu New Area Innovation Investment Fund Center, and State Development and Investment Corporation Technology Investment Co., Ltd.

**Beijing Zhong Yun Rong Hui Investment Center (LP) (北京中云融汇投资中心（有限合伙）)**

- Beijing Zhong Yun Rong Hui Investment Center (LP) controls a 0.89% stake in THATIC.
- This entity is an investment vehicle set up in 2012 with several business entities as limited partners.
- China Broadband Capital Partners, LP, a Chinese investment firm established in 2006, appears to be behind several of the business entities investing in Zhong Yun Rong Hui Investment Center.
- Edward Tian, founder and chairman of China Broadband Capital Partners, was previously the vice chairman and CEO of state-owned China Netcom Group from 2002 to 2006. He was CEO of China Netcom Company from August 1999 to May 2002. Before joining China Netcom Tian was the co-founder and CEO of AsiaInfo Holding, one of China’s earliest Internet technology providers.<sup>3</sup>
- Two of the partnership’s partners, Beijing Zhongguancun Innovation Investment Development Center and E-Town Capital, are state-owned investment and asset management entities that promote local development in the Beijing area.

**Tianjin Cheng Bai Equity Investment Partnership (LP) (天津诚柏股权投资合伙企业（有限合伙）)**

- Tianjin Cheng Bai Equity Investment Partnership (LP) (hereafter “Tianjin Cheng Bai”) controls a 1.79% stake in THATIC.

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<sup>3</sup> <http://www.cbc-capital.com/cp/class/>, accessed August 24, 2016.

- Tianjin Cheng Bai is an investment partnership established in 2008 with both public and private investment.
- Tianjin Cheng Bai appears to be managed by Tian Su Ning (田溯宁), and his name is attached to two of the seven partner investing organizations. Tian is a prominent Chinese tech executive with leadership positions in multiple technology companies and established connections to the Chinese government.
- Chinese government-affiliated organizations are among Tianjin Cheng Bai's investing partners, with the National Council for Social Security Fund (全国社会保障基金理事会) as the largest individual investor. The Chinese Academy of Sciences Holdings Co, Ltd. (中国科学院国有资产经营有限责任公司) is also an investor.

**The Chinese Academy of Sciences Holdings Co, Ltd. (中国科学院国有资产经营有限责任公司)**

- Chinese Academy of Sciences Holdings (CASH) controls a 3.58% stake in THATIC.
- CASH is a wholly state-owned asset management company set up under the Chinese Academy of Sciences in 2002 to manage its state-owned assets and investments.
- CASH controls RMB 5.1 bln in invested capital and has invested in industries including IT, high-end manufacturing, environmental protection and new materials, and modern services, as well as investment firms and vehicles.
- As a large, state-owned institution CASH has a local Chinese Communist Party Committee staffed by members of its senior management.
- The Chinese Academy of Sciences is central to the Chinese national science and technology system and collaborates extensively with the People's Liberation Army and its military research institutes on projects in many technology domains.

**Chengdu Hi-Tech Investment Group Co., Ltd. (成都高新投资集团有限公司)**

- Chengdu Hi-Tech Investment Group controls a 18.90% stake in THATIC.
- This entity is a wholly state-owned corporation set up by the Chengdu Chinese Communist Party Committee to manage development in the Chengdu High-tech Zone.

**Chengdu Lan Hai Qing Zhou Company Management Partnership (LP) (成都蓝海轻舟企业管理合伙企业（有限合伙）)**

- Chengdu Lan Hai Qing Zhou Company Management Partnership controls a 9.81% stake in THATIC.
- This entity was set up as a limited partnership in March 2016, with two computer scientists – Tang Zhimin and Zhang Panyong – as partners.
- Zhang Panyong has written research papers discussing high-powered computing and the Dawning 5000 series of supercomputers, specifically.

**Tianjin Binhai Technology New Area Asset Management Co., Ltd. (天津滨海高新区资产管理有限公司)**

- Tianjin Binhai Technology New Area Asset Management controls a 1.79 % stake in THATIC.

- This entity is a wholly state-owned asset and property management company set up by the Tianjin Binhai Technology and Industry Development Zone (天津滨海高新技术产业开发区).
- Its chairman, Sun Limin, is concurrently secretary of the company's local branch committee of the Chinese Communist Party.

## AMD in China: Background Information

In September 2004, AMD announced plans to form a Greater China headquarters in Beijing tasked with all operations in China, Hong Kong, and Taiwan, aiming to “help ensure AMD's operations are best aligned with the needs of the China market.”<sup>4</sup> In 2004, it invested USD 100 mln directly into a Suzhou semiconductor assembly and test factory and partnered with Dawning “in an attempt to break arch-rival Intel's dominance of the Chinese market.”<sup>5</sup>

Reports in 2005 detailed an agreement between AMD and the Chinese Ministry of Science and Technology (MOST) licensing the x86-compatible Geode series of system-on-chip microprocessors reportedly to boost Chinese development in consumer and commercial markets. This license allowed MOST to pass on technology to selected institutions, the first of which was Peking University. AMD also announced a further USD 750,000 donation to its campaign to develop technology for primary schools in rural China. AMD was to earn licensing revenue from subsequent licensing of the Geode processor to commercial entities identified by Peking University and MOST with access to IP derived from the technology and investment options in subsequently-developed businesses.<sup>6</sup>

AMD has struggled financially in the past several years, and held only 12 percent of the x86 processor market at the end of 2015, compared to competitor Intel's nearly 88 percent.<sup>7</sup> There was speculation last year about whether bankruptcy was imminent.<sup>8</sup> In efforts to fight its way back to financial health, the company has focused on recapturing x86 processor market share, looking particularly at China. It continues to struggle with a “mountain of debt,” approximately USD 2.2 bln.<sup>9</sup>

To cut costs, the company has made clear that it will move away from component manufacturing and focus more on custom design. As part of these efforts to transition to a fabless business model,<sup>10</sup> AMD also entered into a US 436 mln joint venture with Nantong Fujitsu Microelectronics, essentially spinning off its back-end semiconductor factories in Penang, Malaysia and Suzhou, China.<sup>11</sup> In exchange for US 371 mln, AMD cedes an 85% share of its

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<sup>4</sup> <http://ir.amd.com/phoenix.zhtml?c=74093&p=irol-newsArticle&ID=617995>, accessed September 15, 2016.

<sup>5</sup> <http://www.china.org.cn/english/BAT/95985.htm>, accessed September 15, 2016.

<sup>6</sup> <http://www.businesswire.com/news/home/20051023005051/en/AMD-Expands-China-Relationships-Key-x86-Microprocessor>; <http://www.theinquirer.net/inquirer/news/1012944/amd-licenses-x86-technology-to-china>, accessed September 16, 2016.

<sup>7</sup> <http://www.peworld.com/article/3060666/hardware/how-amd-is-ressurrecting-itself-as-a-formidable-rival-to-intel.html>, accessed September 15, 2016.

<sup>8</sup> <http://www.investopedia.com/articles/markets/081415/advanced-micro-devices-bankruptcy-imminent.asp>, accessed September 15, 2016.

<sup>9</sup> <http://wccftech.com/amd-acquires-hialgo-wip/>;

<http://quicktake.morningstar.com/stocknet/bonds.aspx?symbol=amd>, accessed September 15, 2016.

<sup>10</sup> <http://www.mis-asia.com/tech/industries/amd-us436m-deal-spells-benefit-for-semiconductor-manufacturing-teams-in-penang-and-suzhou/>; <http://www.amd.com/en-us/who-we-are/newsroom/nfme-jv>, accessed September 21, 2016.

<sup>11</sup> <http://marketrealist.com/2015/10/amds-jv-nantong-fujitsu-shows-chinas-interest-chip-space/>, accessed September 21, 2016.



assembly, test, mark, and pack operations based at these plants.<sup>12</sup> Nantong Fujitsu is a Sino-Japanese joint venture led by President Shi Mingda.<sup>13</sup> Its two major shareholders, Fujitsu (China) and Nantong Huada Microelectronics Group, hold 21% and 31% stakes, respectively. This move appears to be part of China's attempts to catch up in the domestic semiconductor sector, a necessary backbone to manufacturing domestic server-on-chip and x86 processors like those planned for production at the two AMD-THATIC joint ventures.

### AMD's Joint Venture with THATIC

AMD announced on April 21, 2016 that it had licensed high-performance microprocessor and system-on-chip technology (including fabrics and other IP) to a new joint venture formed with Tianjin Haiguang Advanced Technology Investment Co., Ltd. (THATIC) as part of a broad agreement "to develop SoCs tailored to the Chinese server market."<sup>14</sup> AMD has made clear that this constitutes a license for technology, not market-ready products.<sup>15</sup>

This agreement reflects AMD's broader financial strategy of patent sales and technology licensing, or what the company has termed generally "IP monetization." AMD's sole investment in this joint venture will be its intellectual property while THATIC will provide financing.<sup>16</sup> This has the advantage of giving AMD a cash infusion while helping the company edge into the large Chinese market, as the THATIC joint ventures will put AMD components in many more products.

The licensing agreement is for USD 293 mln, of which USD 52 mln will be delivered to AMD in 2016. AMD is also expecting royalty payments from future product sales.<sup>17</sup> The company will also gain access to a "seemingly endless list of grants" from the more-generous Chinese government, from which competitors like Intel have also benefitted in the past.<sup>18</sup>

As part of the agreement, AMD and THATIC will establish two joint venture subsidiaries located in Chengdu under the names Chengdu Haiguang Microelectronic Technology Co., Ltd. and Chengdu Haiguang Integrated Circuit Design Co., Ltd. AMD has announced that it will retain a majority shareholder stake in one company and take a minority stake in the other.<sup>19</sup>

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<sup>12</sup> <http://www.amd.com/en-us/press-releases/Pages/amd-and-nantong-2016apr29.aspx>, accessed September 21, 2016.

<sup>13</sup> [https://www.emis.com/php/company-profile/CN/Nantong\\_Fujitsu\\_Microelectronics\\_Co\\_Ltd\\_%E5%8D%97%E9%80%9A%E5%AF%8C%E5%A3%AB%E9%80%9A%E5%BE%AE%E7%94%B5%E5%AD%90%E8%82%A1%E4%BB%BD%E6%9C%89%E9%99%90%E5%85%AC%E5%8F%B8\\_\\_en\\_2357696.html](https://www.emis.com/php/company-profile/CN/Nantong_Fujitsu_Microelectronics_Co_Ltd_%E5%8D%97%E9%80%9A%E5%AF%8C%E5%A3%AB%E9%80%9A%E5%BE%AE%E7%94%B5%E5%AD%90%E8%82%A1%E4%BB%BD%E6%9C%89%E9%99%90%E5%85%AC%E5%8F%B8__en_2357696.html)

<sup>14</sup> <http://www.amd.com/en-us/press-releases/Pages/press-release-2016apr21.aspx>, accessed September 15, 2016.

<sup>15</sup> <https://community.amd.com/thread/199431>

<sup>16</sup> <http://www.pcworld.com/article/3060273/components-processors/a-new-amd-licensing-deal-could-create-more-x86-rivals-for-intel.html>, accessed September 15, 2016.

<sup>17</sup> <http://www.amd.com/en-us/press-releases/Pages/press-release-2016apr21.aspx>, accessed September 15, 2016.

<sup>18</sup> <http://vrworld.com/2016/04/23/new-amd-corporate-strategy-starts-pay-off/>, accessed September 15, 2016.

<sup>19</sup> <http://www.amd.com/en-us/press-releases/Pages/press-release-2016apr21.aspx>, accessed September 15, 2016.

For these reasons, AMD President and CEO Lisa Su has said the agreement with THATIC represents the successful implementation of this strategy. “Our new licensing agreement is a great example of leveraging our strong IP portfolio to accelerate the adoption of our technologies more broadly,” she said in a statement. “The joint venture with THATIC provides AMD with a differentiated approach to help gain share in the fastest growing region of the server market.”<sup>20</sup> Su also noted that the license is for “a number of years through the product development and sales cycle.”<sup>21</sup>

Share prices, trading below USD 2 a year ago,<sup>22</sup> doubled with the announcement and continued on an upward trajectory with announcements of tests to its Zen processor to a high of USD 8 in August.<sup>23</sup> Moody’s Investors Services revised its outlook of the company from negative to positive in early September 2016.<sup>24</sup>

Elaborating further on the AMD approach and its plans to rely on Chinese local partners and their connections, Su said:

I think we believe that there is a large opportunity in the data center market across the board. That is why we are investing so much in Zen and its follow ons. As it relates to the China JV that we are doing with THATIC, I think there is a -- certainly a benefit to having someone local that has experience in the market and knowledge of the market. And THATIC is an investment consortium that is partially led by the Chinese Academy of Sciences. So we think that both from a technical and a commercial standpoint, they will be a value-added partner in this joint venture.<sup>25</sup>

THATIC is a computer technology investment consortium with investors including the Chinese Academy of Sciences and Sugon Information Industry. THATIC is widely described in Chinese and English reports as “under guidance” from and “led by” the Chinese Academy of Sciences with connections to the Chinese Ministry of Science and Technology.<sup>26</sup>

Several of THATIC’s leaders, including chairman and CEO Tang Zhimin, come from the Chinese Academy of Sciences Institute of Computing Technology, which prioritizes bolstering China’s national defense and security through the development of advanced technology. THATIC shareholders include academic institutions, state-owned enterprises, and private companies with government and Party ties. Tang Zhimin also acts as director and CEO of the

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<sup>20</sup> <http://ir.amd.com/phoenix.zhtml?c=74093&p=irol-newsArticle&ID=2159398>, accessed September 15, 2016.

<sup>21</sup> <https://finance.yahoo.com/news/edited-transcript-amd-earnings-conference-051600440.html>, accessed September 15, 2016.

<sup>22</sup> [http://ir.amd.com/phoenix.zhtml?c=74093&p=irol-stockLookup&t=HistQuote&control\\_firstdatereturned=](http://ir.amd.com/phoenix.zhtml?c=74093&p=irol-stockLookup&t=HistQuote&control_firstdatereturned=), accessed September 15, 2016.

<sup>23</sup> <https://timesheet.defensegap.com/DeltekTC/TimeCollection.msv>, accessed September 15, 2016.

<sup>24</sup> [http://www.streetinsider.com/Credit+Ratings/Moodys+Lifts+Outlook+on+Advanced+Micro+Devices+\(AMD\)+to+Positive%3B+Ratings+Affirmed/12009211.html](http://www.streetinsider.com/Credit+Ratings/Moodys+Lifts+Outlook+on+Advanced+Micro+Devices+(AMD)+to+Positive%3B+Ratings+Affirmed/12009211.html), accessed September 15, 2016.

<sup>25</sup> <https://finance.yahoo.com/news/edited-transcript-amd-earnings-conference-051600440.html>, accessed September 15, 2016.

<sup>26</sup> <http://www.wsj.com/articles/amd-to-license-chip-technology-to-china-chip-venture-1461269701>; <http://www.expreview.com/46770.html>, accessed September 15, 2016.

AMD-THATIC joint ventures, Chengdu Haiguang Microelectronic Technology Co., Ltd. and Chengdu Haiguang Integrated Circuit Design Co., Ltd.<sup>27</sup>

### Technologies to Be Licensed

AMD reportedly plans to license the technology necessary to build server chips, including controllers, interconnects, and CPUs that will allow for the development of variants of the x86 for more kinds of servers.<sup>28</sup> The subsidiary companies are expected to use this technology to design for a broad array of uses, with reports speculating about its application from small-scale use to large-scale, multi-socket processors used in datacenters and supercomputers, valuable to military cyber infrastructure and networks.<sup>29</sup>

AMD itself acknowledges this range of application. When questioned directly in an earnings conference call on the day of the announcement about the end markets for these server products and whether they specifically targeted government, research institutions, or Chinese Internet companies, AMD CEO Lisa Su said, “I think it's fair to say that the market range for the joint venture will be across China, so across all of the markets that you mentioned.”<sup>30</sup>

While AMD has confirmed that it has licensed technology for the x86 processor, it has not yet confirmed which type of core architecture this will include. AMD had previously licensed the x86-compatible Geode series of system-on-chip technology under an agreement with the Ministry of Science and Technology (MOST) to develop Chinese embedded and low-power x86 processor technology “for consumer and commercial markets.”<sup>31</sup> MOST designated Peking University as the first beneficiary to receive technology from this license.<sup>32</sup> A central question is whether AMD will transfer or license its high-performance x86 core “Zen” architecture. AMD claims the Zen architecture has a 40% better performance compared to its previous AMD core without increasing power.<sup>33</sup>

Given its recent, high-profile testing of its latest Zen-based server processor and its comments about its strategy to use the Zen processor to re-establish itself in the data center market (in

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<sup>27</sup> [<http://www.tianyancha.com/company/330537056>, accessed September 13, 2016.

<sup>28</sup> <http://www.itechpost.com/articles/17388/20160425/amd-comes-back-force-strong-rival-intel.htm>, accessed September 15, 2016.

<sup>29</sup> <http://vrworld.com/2016/04/23/new-amd-corporate-strategy-starts-pay-off/>;  
<https://www.techpowerup.com/221901/amd-to-custom-design-cpus-for-the-chinese-government>, accessed September 15, 2016

<sup>30</sup> <https://finance.yahoo.com/news/edited-transcript-amd-earnings-conference-051600440.html>, accessed September 15, 2016.

<sup>31</sup> <http://www.businesswire.com/news/home/20051023005051/en/AMD-Expands-China-Relationships-Key-x86-Microprocessor>, accessed September 15, 2016.

<sup>32</sup> <http://www.theinquirer.net/inquirer/news/1012944/amd-licenses-x86-technology-to-china>, accessed September 15, 2016.

<sup>33</sup> <http://www.amd.com/en-us/innovations/software-technologies/zen-cpu>

which China is a major player),<sup>34</sup> speculation in both the English- and Chinese-language tech blogospheres centers on this new processor.<sup>35</sup>

Numerous Chinese media outlets claim that the AMD-THATIC joint venture arrangements will “very likely” include the Zen processor. One article trending on a few websites describes China as “drooling over X86 processor technology,”<sup>36</sup> and claims that numerous analysts and media are speculating the deal will include Zen processors.

This deal will allow AMD to expand into the Chinese server market. Given its cross-licensing agreement with market-dominant Intel, some observers have speculated about a potential backlash or potential violations. AMD claims that because it is licensing technology, it does not violate the cross-licensing agreement with Intel, with CEO Lisa Su saying “there are no encumbrances from that standpoint.”<sup>37</sup> An AMD spokesperson noted that the structure of the joint ventures has likely been designed to avoid violating the agreement with Intel.<sup>38</sup>

AMD has announced that the Zen processor will be in desktop products beginning in 2017.<sup>39</sup> CEO Lisa Su has said that the joint venture will be in the “development phase” in 2016, leading to estimates that the joint venture rollout of Zen-based server products will follow its AMD release.<sup>40</sup>

For future cooperation and licensing with THATIC, Su has mentioned the potential for graphics acceleration technology. In an April 21, 2016 conference call, Su responded to a question to say, “to your comment about graphics acceleration or just in general becoming more important and a growth driver, we would agree with that. I think going forward, you will see a bit more focus from us in that area.”<sup>41</sup>

## THATIC Stakeholders

THATIC’s ownership and shareholder distribution has undergone changes since its founding in 2014. This report profiles each entity, and identifies linkages between them. For reference, the following THATIC’s founding shareholders:<sup>42</sup>

1. Chengdu Hi-Tech Investment Group Co., Ltd. (成都高新投资集团有限公司)

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<sup>34</sup> <http://www.amd.com/en-gb/innovations/software-technologies/zen-cpu>; <https://finance.yahoo.com/news/edited-transcript-amd-earnings-conference-051600440.html>, accessed September 15, 2016.

<sup>35</sup> <http://www.anandtech.com/show/10268/china-calling-amd-forms-joint-venture-for-x86-server-socs-in-china>; <http://news.mydrivers.com/1/479/479259.htm>, accessed September 15, 2016.

<sup>36</sup> “中国对 X86 处理器技术一直垂涎三尺”

<sup>37</sup> <https://finance.yahoo.com/news/edited-transcript-amd-earnings-conference-051600440.html>, accessed September 15, 2016.

<sup>38</sup> <http://www.wsj.com/articles/amd-to-license-chip-technology-to-china-chip-venture-1461269701>, accessed September 15, 2016.

<sup>39</sup> <http://www.amd.com/en-gb/innovations/software-technologies/zen-cpu>, accessed September 15, 2016.

<sup>40</sup> <https://finance.yahoo.com/news/edited-transcript-amd-earnings-conference-051600440.html>, accessed September 15, 2016.

<sup>41</sup> Ibid.

<sup>42</sup> Corporate records accessed at <http://tjcredit.gov.cn> on August 16, 2016. Direct link to record unavailable.

2. Tianjin Hai Fu Tian Ding Technology Partnership (LP) (天津海富天鼎科技合伙企业 (有限合伙))
3. Sugon Information Industry Co., Ltd. (曙光信息产业股份有限公司)
4. Chengdu Industry Investment Group Co., Ltd. (成都工业投资集团有限公司)
5. Tianjin Cheng Bai Equity Investment Partnership (LP) (天津诚柏股权投资合伙企业 (有限合伙))
6. The Chinese Academy of Sciences Holdings Co, Ltd. (CAS Holdings / 中国科学院国有资产经营有限责任公司)
7. Tang Zhiming (唐志敏)
8. Tianjin Binhai New Area Asset Management Co., Ltd. (天津滨海高新区资产管理有限公司)

Currently THATIC's shareholding distribution comprises the following ten entities, each of which is profiled in this report:<sup>43</sup>

- Sugon Information Industry Co., Ltd. (曙光信息产业股份有限公司) – 26.46%
- Chengdu Industry Investment Group Co., Ltd. (成都工业投资集团有限公司) – 18.90%
- Tianjin Hai Fu Tian Ding Technology Partnership (LP) (天津海富天鼎科技合伙企业 (有限合伙)) – 17.01%
- Sichuan Hongyun Next-Generation Information Technology Venture Capital Fund Partnership (LP) (Hongyun LP / 四川虹云新一代信息技术创业投资基金合伙企业 (有限合伙)) – 0.89%
- Beijing Zhong Yun Rong Hui Investment Center (LP) (北京中云融汇投资中心 (有限合伙)) – 0.89%
- Tianjin Cheng Bai Equity Investment Partnership (LP) (天津诚柏股权投资合伙企业 (有限合伙)) – 1.79%
- The Chinese Academy of Sciences Holdings Co, Ltd. (中国科学院国有资产经营有限责任公司) – 3.58%
- Chengdu Hi-Tech Investment Group Co., Ltd. (成都高新投资集团有限公司) – 18.90%
- Chengdu Lan Hai Qing Zhou Company Management Partnership (LP) (成都蓝海轻舟企业管理合伙企业 (有限合伙)) – 9.81%
- Tianjin Binhai New Area Asset Management Co., Ltd. (天津滨海高新区资产管理有限公司) – 1.

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<sup>43</sup> Corporate records accessed at <http://tjcredit.gov.cn> on August 16, 2016. Direct link to record unavailable.

## Profile I: THATIC (天津海光先进技术投资有限公司)

### Key Findings

- Tianjin Haiguang Advanced Technology Investment Co., Ltd. (THATIC) is a computer technology joint venture sponsored by the Chinese Academy of Sciences and Sugon Information Industry, a leading Chinese supercomputer developer.
- THATIC and AMD recently set up two joint venture subsidiaries in February 2016 to support collaboration on x86 server technology.
- The two subsidiaries are both located in Chengdu and are named Chengdu Haiguang Microelectronic Technology and Chengdu Haiguang Integrated Circuit Design Company, respectively.
- AMD is represented on the board of directors at THATIC by at least two AMD vice presidents, Harry Allen Wolin and Shantnu Sharma.

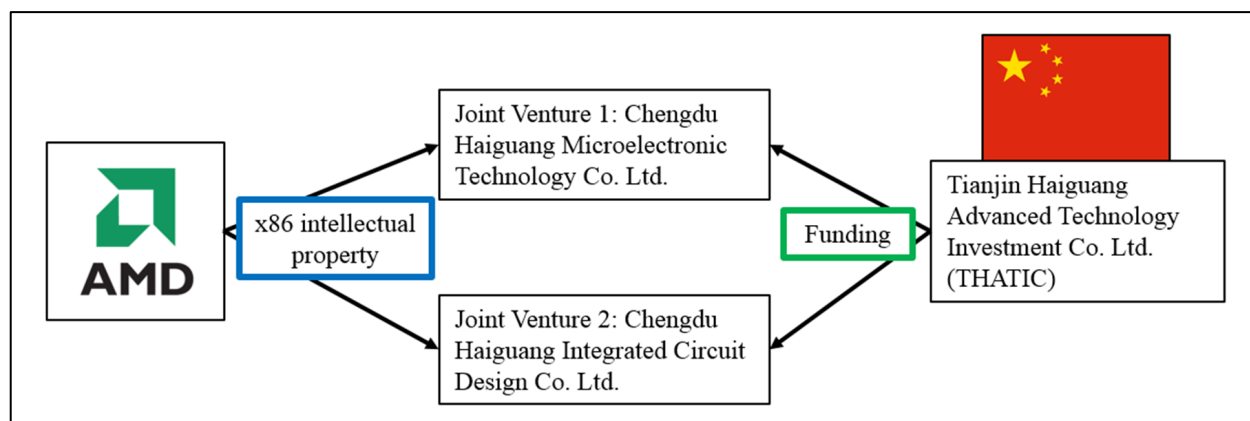


Figure 1: Summary of linkages between AMD and THATIC.

### Company Profile

#### Overview

THATIC is a computer technology joint venture set up between several investment partners in 2014. Key investors include Sugon Information Industry, a leading Chinese supercomputer developer, and several computer scientists affiliated with the Chinese Academy of Sciences Institute of Computing Technology. Sugon is THATIC's largest investor.<sup>44</sup>

THATIC's registration documents list its official email address as tang@ict.ac.cn, which is the official email address used by a Chinese Academy of Sciences (CAS) computer scientist named Tang Zhimin. Tang works at the State Key Lab of Computer Architecture at the Institute of Computing Technology, CAS.<sup>45</sup> For a complete profile of Tang Zhimin, see page 17.

AMD and THATIC press releases in early 2016 indicated that the two companies would pursue their joint venture through the formation of two jointly-invested subsidiaries. A Chinese business

<sup>44</sup> <http://tjcredit.gov.cn/>, accessed August 20, 2016. Direct link to corporate record unavailable.

<sup>45</sup> <http://people.ucas.ac.cn/~0012887?language=en>, accessed September 13, 2016.

analysis website indicates that THATIC currently has only two subsidiaries, both of which were formed in Chengdu in early 2016.<sup>46</sup>

1. Chengdu Haiguang Microelectronic Technology Co., Ltd. (成都海光微电子技术有限公司)<sup>47</sup>
  - Date of incorporation: February 26, 2016.
  - Legal representative and chairman: Harry Allen Wolin.
  - Director and CEO: Tang Zhimin.
  - Shareholders: THATIC, AMD.
  - Registered capital: USD 91.83 mln.
  - Registration number: 91510100MA61TL6Q5D.
2. Chengdu Haiguang Integrated Circuit Design Co., Ltd. (成都海光集成电路设计有限公司)<sup>48</sup>
  - Date of incorporation: February 26, 2016.
  - Legal representative, chairman and CEO: Tang Zhimin.
  - Shareholders: THATIC, AMD.
  - Registered capital: USD 200 mln.
  - Registration number: 91510100MA61TL6R38.

Corporate Registration Information for Tianjin Haiguang Advanced Technology Investment Co., Ltd.<sup>49</sup>

<b>Corporate Registration Number</b>	120193000095571	
<b>Type of Company</b>	Limited liability company 有限责任公司	
<b>Registered Address</b>	Tianjin Huayuan Industrial Zone, Haitai West Road No. 18, North 2-204 Industry Incubator -3-8 天津华苑产业区海泰西路 18 号北 2-204 工业孵化-3-8	
<b>Other Contact Information</b> <sup>50</sup>	<i>Phone</i>	010-62600854
	<i>Fax</i>	NA
	<i>Email</i>	tang@ict.ac.cn
<b>Date of Incorporation</b>	October 24, 2014	
<b>Registered Capital</b>	RMB 1.72 billion	
<b>Authorized Scope of Business</b>	Invest in high technology industry using own funds. Scientific research and technology services.	

<sup>46</sup> <http://www.tianyancha.com/company/330537056>, accessed September 13, 2016.

<sup>47</sup> <http://www.tianyancha.com/company/2354071747>, accessed September 13, 2016.

<sup>48</sup> <http://www.tianyancha.com/company/2352013801>, accessed September 13, 2016.




<sup>49</sup> SAIC records accessed at <http://tjcredit.gov.cn/>, accessed September 13, 2016.

<sup>50</sup> Searches were conducted for additional company contact information in Chinese job postings, résumés, B2B websites, and other online sources to supplement corporate information on file.



## Key Personnel

Based on searches of this entity's website, corporate data, and other online information, key personnel at THATIC include the following individuals:

	<p><b>Tang Zhimin (唐志敏)</b></p> <ul style="list-style-type: none"> <li>• Tang is chairman and CEO at THATIC.<sup>51</sup></li> <li>• Tang is a researcher at the Chinese Academy of Sciences Institute of Computing Technology.</li> <li>• Tang's research focuses on computer system architectures, digital signals processing, and super large scale integrated circuit design.<sup>52</sup></li> <li>• For more information on Tang, see page 29.</li> </ul>
	<p><b>Liu Xinchun (刘新春)</b></p> <ul style="list-style-type: none"> <li>• Liu is a director at THATIC.<sup>53</sup></li> <li>• Liu is a researcher at the Chinese Academy of Sciences Institute of Computing Technology and a member of the University of Chinese Academy of Sciences faculty.<sup>54</sup></li> <li>• Liu participated in developing the Dawning 4000H bioinformatics-oriented supercomputer.<sup>55</sup></li> <li>• Liu's research focuses on high performance networks and reconfigurable computing.<sup>56</sup></li> </ul>
	<p><b>Yang Xiaojun (杨晓君)</b></p> <ul style="list-style-type: none"> <li>• Yang is a director at THATIC.<sup>57</sup></li> <li>• Yang is a senior engineer at the Chinese Academy of Sciences Institute of Computing Technology, where he works at the High Performance Computing Center.<sup>58</sup></li> <li>• Yang's expertise lies in server system design, high-performance computing, and inter-chip and on-chip networking.<sup>59</sup></li> </ul>
<p>NA</p>	<p><b>Liu Xingkui (刘兴奎)</b></p> <ul style="list-style-type: none"> <li>• Liu Xingkui is a director at THATIC.<sup>60</sup></li> </ul>
<p>NA</p>	<p><b>Pan Xiaoming (潘晓明)</b></p>

<sup>51</sup> <http://www.tianyancha.com/company/2352013801>, accessed September 13, 2016.

<sup>52</sup> [http://sourcedb.ict.cas.cn/cn/jssrck/201202/t20120217\\_3441943.html](http://sourcedb.ict.cas.cn/cn/jssrck/201202/t20120217_3441943.html), accessed August 17, 2016.

<sup>53</sup> <http://www.tianyancha.com/company/2352013801>, accessed September 13, 2016.

<sup>54</sup> <http://people.ucas.ac.cn/~0004710>, accessed August 17, 2016.

<sup>55</sup> <http://www.ezkaoyan.com/school/ict/column2/2006-4-12/20064125826234.htm>, accessed August 17, 2016.

<sup>56</sup> [http://sourcedb.ict.cas.cn/cn/jssrck/200909/t20090917\\_2496679.html](http://sourcedb.ict.cas.cn/cn/jssrck/200909/t20090917_2496679.html), accessed August 17, 2016.




<sup>57</sup> <http://www.tianyancha.com/company/2352013801>, accessed September 13, 2016.

<sup>58</sup> <http://www.ict.cas.cn/yjsjy/dsjj/sdjsjxtjg/>, accessed August 17, 2016.

<sup>59</sup> [http://sourcedb.ict.cas.cn/cn/jssrck/200909/t20090917\\_2496758.html](http://sourcedb.ict.cas.cn/cn/jssrck/200909/t20090917_2496758.html), accessed August 17, 2016.

<sup>60</sup> <http://www.tianyancha.com/company/2352013801>, accessed September 13, 2016.



	<ul style="list-style-type: none"> <li>• Pan Xiaoming is a director at THATIC.<sup>61</sup></li> </ul>
	<p><b>Zhang Panyong (张攀勇)</b></p> <ul style="list-style-type: none"> <li>• Zhang is a director at THATIC.<sup>62</sup></li> <li>• Zhang is a researcher who has been affiliated with the National Intelligent Computing Research Center at the Chinese Academy of Sciences Institute of Computing Technology.<sup>63</sup></li> <li>• Zhang was a Ph.D. candidate at CAS as of 2010.<sup>64</sup></li> <li>• Zhang published an article in a CAS newsletter in 2009 discussing the development of Sugon's Dawning 5000 line of supercomputers.<sup>65</sup></li> <li>• Zhang has written articles about high-powered computing and networking computing clusters.<sup>66</sup></li> <li>• Zhang is listed as the executive partner in Chengdu Lan Hai Qing Zhou Company Management Partnership registration documents.<sup>67</sup></li> </ul>
	<p><b>Harry Allen Wolin</b></p> <ul style="list-style-type: none"> <li>• Harry Allen Wolin is deputy chairman at THATIC.<sup>68</sup></li> <li>• Harry Wolin is a senior vice president and general counsel at AMD.<sup>69</sup></li> </ul>
	<p><b>Shantnu Sharma</b></p> <ul style="list-style-type: none"> <li>• Shantnu Sharma is a supervisor at THATIC.<sup>70</sup></li> <li>• Sharma is a vice president and head of business development at AMD.<sup>71</sup></li> </ul>
NA	<p><b>Hu Hua (胡华)</b></p> <ul style="list-style-type: none"> <li>• Hu Hua is a supervisor at THATIC.<sup>72</sup></li> </ul>

<sup>61</sup> <http://www.tianyancha.com/company/2352013801>, accessed September 13, 2016.

<sup>62</sup> <http://www.tianyancha.com/company/2352013801>, accessed September 13, 2016.

<sup>63</sup> <http://www.c-dblp.cn/author/%E5%BC%A0%E6%94%80%E5%8B%87>, accessed September 7, 2016.

<sup>64</sup> <http://cjc.ict.ac.cn/quanwenjiansuo/2010-2/zpy.pdf>, accessed September 7, 2016.

<sup>65</sup> <http://www.ict.ac.cn/cxwh/cxqs/200905/P020090724566345866586.pdf>, accessed September 7, 2016.

<sup>66</sup> <http://www.c-dblp.cn/author/%E5%BC%A0%E6%94%80%E5%8B%87>, accessed September 7, 2016.

<sup>67</sup> <http://gsxt.scaic.gov.cn/>, accessed September 7, 2016. Direct link to record unavailable.

<sup>68</sup> <http://www.tianyancha.com/company/2352013801>, accessed September 13, 2016.

<sup>69</sup> <http://www.amd.com/en-us/who-we-are/corporate-information/leadership/harry-wolin>, accessed September 13, 2016.

<sup>70</sup> <http://www.tianyancha.com/company/2352013801>, accessed September 13, 2016.

<sup>71</sup> <https://www.linkedin.com/in/shantnu>, accessed September 13, 2016.

<sup>72</sup> <http://www.tianyancha.com/company/2352013801>, accessed September 13, 2016.

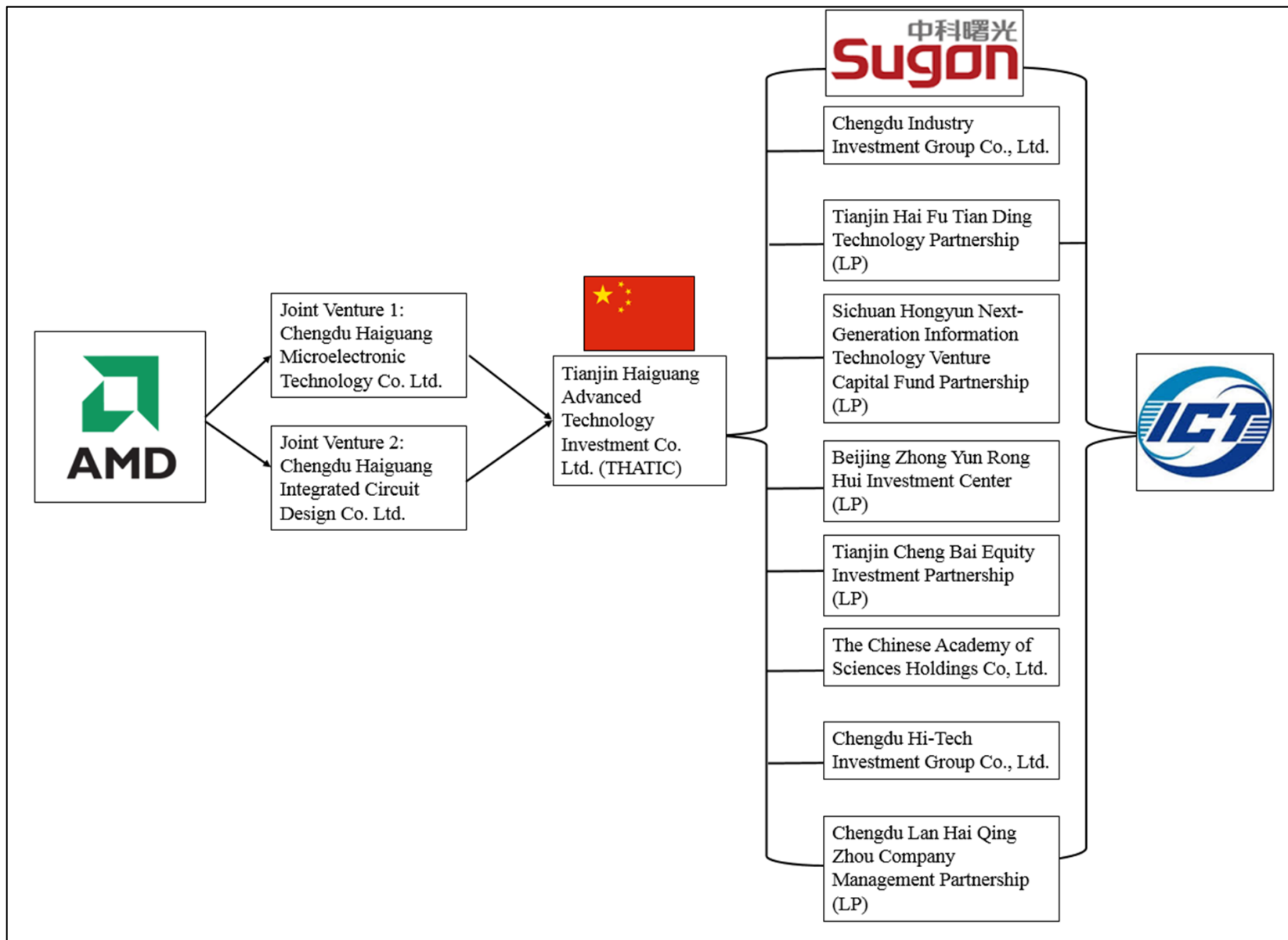


Figure 2: Summary of links between AMD, THATIC, and the Institute of Computing Technology at Chinese Academy of Sciences.

## **Profile II: Institute of Computing Technology of the Chinese Academy of Sciences (中国科学院计算技术研究所)**

### **Key Findings**

- Chinese media has described ICT as the driving force behind the partnership between THATIC and AMD.
- ICT describes one of its chief purposes as national defense construction through the development of advanced technology.
- ICT possesses a Micro-Processing Research Center tasked with developing China's own "independent and controllable" computer processors in support of China's 883 Program.
- ICT is a registered supplier on China's Weapons Equipment Information Network (WEAIN).
- There is evidence of long-standing interest on the part of ICT in developing computer systems, and system instruction architecture in particular, for reasons of national defense.
- ICT's current head has described cooperation with foreign firms and the absorption of advanced technology from abroad as the "high speed rail" method for developing China's indigenous computer industry.
- Below is an overview of the linkages between ICT, AMD, and THATIC.

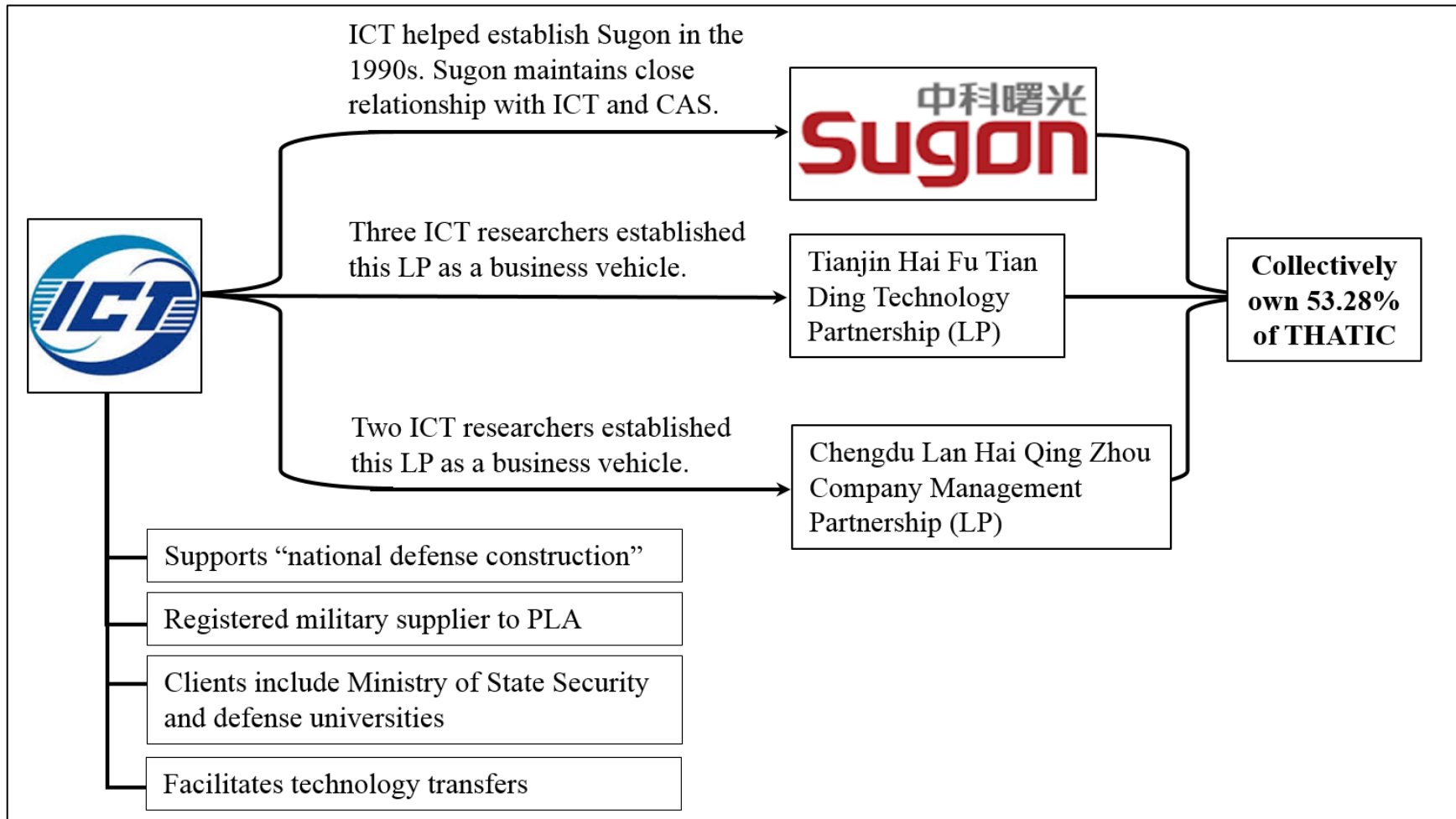


Figure 3: Summary of relevant information and ties between the Institute of Computing Technology at CAS and THATIC.

## Organization Profile

### Overview

ICT is China's leading institute for computing technology to support the country's military and civilian end-users. From its founding in 1956 to today, it has played a leading role in fusing and distributing research between China's military, civilian, and commercial entities. A recent commentary from ICT claims that key words to describe its mission include “mission” (使命), “leading” (引领), and “accelerating transfer” (加速转移) of technologies to their final end-users.<sup>73</sup>

Founded as part of China Academy of Sciences (CAS) in 1956, ICT was the first Chinese academic institution to specialize in computer science and technology research, and its work is at the heart of China's effort to advance its national computing industry.<sup>74</sup> From 1968 to 1975, ICT was formally a military institution under the National Defense Science and Technology Commission.<sup>75</sup> Today, CAS is China's highest academic body focused on natural sciences research and development.<sup>76</sup> Its numerous subordinate laboratories advance China's capabilities in computer system design, microprocessors, high-performance computing, data storage, networking, information management, and many other fields.<sup>77</sup> ICT's Micro-Processing Research Center (微处理器研究中心) is tasked with the development and advancement of China's own “independent and controllable” (自主可控) computer processors. This work and other projects receive generous support from China's 863 Program, a dual-use research program managed by the Ministry of Science and Technology with input from the Chinese military.<sup>78</sup> Today ICT openly discusses its role as a facilitator between China's universities, industries, military, and corporations. This interlocutor role is part of China's broader strategy of “military-civilian fusion” (军民融合), in which technology, intellectual property, personnel, know-how, and resources flow freely between commercial and military entities. For example, a recent authoritative commentary on China's national defense stated this fusion can provide “an even more solid material and technological foundation” for China's military modernization.<sup>79</sup> Originally, the logic behind this integration was to allow China's economy to benefit from military expenditures or spin-offs, but as commercial technologies have advanced the strategy now calls for “spin-ons” from the commercial spheres to the military.

ICT explicitly states that it helps facilitate computing technology transfers between commercial and military end-users. In March 2016, the institute published a piece on “the position of ICT” within China's broader industries, government, and military domains. The commentary, which

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<sup>73</sup> [http://www.ict.ac.cn/jssgk/jssdw/201603/t20160331\\_4577834.html](http://www.ict.ac.cn/jssgk/jssdw/201603/t20160331_4577834.html)

<sup>74</sup> [<sup>75</sup> <http://www.ict.ac.cn/jssgk/lrld/>, accessed September 1, 2016](http://baike.baidu.com/link?url=4pSmOcnFBduYuSNLSqIyIymTzEnhVaDVQzf1Ic0XKZqyxihCdmqNyxUUQM0PlbvylqeILBcvdhbdj9Y6TUV_cw0yqX0LPIW7z5GQjdtSj4a1zfwPiKmCcFnK79BCQJaTsXBFgmH7Jsf5U4jqS0wExMk-8ys92U5v4IOXkHSVgWTwF3Zfo5VWs_ptpTMil9h_YHH4DUKls6L0c1Fj-_A-a, , September 12, 2016.</a></p></div><div data-bbox=)

<sup>76</sup> Established by and under the direction of the Chinese central government, oversight responsibility for CAS resides with the State Council of the PRC. CAS is headquartered in Beijing with over 100 branch institutes throughout mainland China. See [<sup>77</sup> <http://www.ict.cas.cn/jgsz/>, accessed September 1, 2016.](http://baike.baidu.com/link?url=g-chadBa62pBfpzbfFhltkL3VbaK-bNfWWfaGJIV2r5p1kkF7_R6QWa91ywqb7ImnlUr-QFzIfb8U_m-mcsyEK, September 12, 2016.</a></p></div><div data-bbox=)

<sup>78</sup> <http://www.ict.ac.cn/jgsz/kyxt/wclqyjzx/>, September 12, 2016.

<sup>79</sup> Military Strategy Research Department, PLA Academy of Military Sciences, *Science of Strategy*, 2013, p. 145.

drew from viewpoints and speeches from ICT’s 2013 annual strategic planning meeting, claims that two of ICT’s missions are “safeguarding national information security” and conducting technology transfers.<sup>80</sup> The authors believe that a major problem with China’s S&T research is that universities, industries, military, and corporations all have their own fixed “domains” (地盘). CAS facilitates the fusion and technological interchanges between these groups, with ICT likely playing a leading role for technology transfers in the IT domain.<sup>81</sup>

ICT established Beijing China Academy of Sciences Institute of Computing Technology Source Asset Management Ltd. (北京中科算源资产管理有限公司) in 2007, with controlling stock in 25 ICT-affiliated companies (corporate records information is below).<sup>82</sup>

#### Corporate Registration Information for Beijing China Academy of Sciences Institute of Computing Technology Source Asset Management Ltd.<sup>83</sup>

<b>Social Credit Code</b> 统一社会信用代码	91110108669117526D
<b>Type of Company</b>	Limited liability corporation (wholly owned) 有限责任公司 (法人独资)
<b>Registered Address</b>	Beijing Haidian District, Zhongguancun, Academy of Sciences South Road No. 6 Research Integration Building, Room 1213 北京市海淀区中关村科学院南路 6 号科研综合楼 1213 室
<b>Other Contact Information</b> <sup>84</sup>	<i>Phone</i> NA
	<i>Fax</i> NA
	<i>Email</i> NA
<b>Date of Incorporation</b>	15 November 2007
<b>Registered Capital</b>	RMB 10 million
<b>Authorized Scope of Business</b>	Asset management, investment management, investment consulting, technology transfer, technology service, and technology consulting.

#### Political or Government Connections

ICT and China’s national security interests

In recounting its history, ICT on its website describes one of its chief purposes as serving the construction of China’s national defense through the development of advanced technology, and summarizes its current mission as promoting China’s indigenous innovation and its place as a technological great power. In 2013 there were apparent discussions around establishing a

<sup>80</sup> [http://www.ict.ac.cn/jssgk/jssdw/201603/t20160331\\_4577834.html](http://www.ict.ac.cn/jssgk/jssdw/201603/t20160331_4577834.html)

<sup>81</sup> [http://www.ict.ac.cn/jssgk/jssdw/201603/t20160331\\_4577834.html](http://www.ict.ac.cn/jssgk/jssdw/201603/t20160331_4577834.html)

<sup>82</sup> <http://www.ict.cas.cn/jszy/qyfh/>, September 1, 2016.

<sup>83</sup> AIC records accessed at <http://qyxy.baic.gov.cn/> on 6 May 2016. Direct link to record unavailable.

<sup>84</sup> Searches were conducted for additional company contact information in Chinese job postings, résumés, B2B websites, and other online sources to supplement corporate information on file.

dedicated research center in support of national defense and security through coordinated civilian-defense cooperation.<sup>85</sup>

ICT has received accolades from Chinese government and Party institutions for its national defense-related research work. For example, in 2013 ICT received an award from the Party's Central Committee and the State Council for its high performance computer systems research. This research is described as an important tool in ensuring national defense and security, in addition to advancing innovation and economic development.<sup>86</sup>

### ICT's interest in foreign computer chip technology

ICT has had a long interest in developing computer systems, and instruction set architecture in particular, for reasons of national security. In 2008, then head of ICT Li Guo Jie (李国杰) wrote of the need for China to possess its own "independent and controllable" (自主可控) computer systems, stating that the principal reason for doing so was to ensure information security for military and government departments. This task was thus a "national strategic necessity," and the most important endeavor facing China's computer sphere over the next 10 years. Furthermore, he argued that instruction set architecture (e.g. x86, ARM, etc) was the starting point in this effort, expressing hopes that China could construct its own instruction set architecture.<sup>87</sup> A speech Li delivered in 2010 used similar themes.<sup>88</sup>

More recently and in the context of the AMD deal, Li's successor, Sun Ning Hui (孙凝晖), participated in Sugon's March 2016 strategy press conference and described cooperation with foreign firms as the "high speed rail" path for China's development of computer chip technology. He noted ICT's cooperation with AMD and other foreign firms as part of this effort to absorb advanced technology from abroad and thereby develop the industry by "standing on the shoulders of giants."<sup>89</sup>

The article recounting Sun's remarks notes matter-of-factly that CAS is the driving force behind THATIC's partnership with AMD, noting that THATIC's shareholders include Sugon and CAS Holdings.<sup>90</sup>

## Customers of Concern

### Defense Industry

- ICT is a registered supplier on the Weapons Equipment Acquisition Information Network (WEAIN). They do not enumerate specific products offered, but advertise expertise in computers, electronic information, internet communications, and satellite applications.<sup>91</sup>

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<sup>85</sup> <http://www.ict.cas.cn/cxwh/cxqs/201403/P020140422507173404960.pdf>, pg. 2, September 12, 2016.

<sup>86</sup> <http://www.ict.cas.cn/cxwh/cxqs/201403/P020140422507173404960.pdf>, pg. 8, September 12, 2016.

<sup>87</sup> [http://www.ict.ac.cn/liguojiewenxuan/wzlj/lgjxsbg/201103/t20110310\\_3081940.html](http://www.ict.ac.cn/liguojiewenxuan/wzlj/lgjxsbg/201103/t20110310_3081940.html), September 13, 2016.

<sup>88</sup> <http://www.ict.ac.cn/liguojiewenxuan/wzlj/lgjxsbg/201201/P020120106408253917499.pdf>, September 13, 2016.

<sup>89</sup> <http://companies.caixin.com/2016-04-27/100937112.html>, September 13, 2016.

<sup>90</sup> <http://companies.caixin.com/2016-04-27/100937112.html>, September 13, 2016.

<sup>91</sup> Information accessed at

<http://www.weain.mil.cn/cgcms/Enterprise/detail?SiteID=122&ContentID=524371&HANGYELEIBIE=>, September 14, 2016.





## Ministry of State Security

- ICT operates a computer training center whose clients include clients include China's Ministry of State Security (MSS) and Chinese military universities.<sup>92</sup> The MSS is China's domestic and international security and espionage service.

## Key Personnel

Based on searches of this entity's website, corporate data, and other online information, key personnel associated with the Chinese Academy of Sciences Institute of Computing Technology include the following individuals:

	<p><b>Sun Ninghui (孙凝晖)</b><sup>93</sup></p> <ul style="list-style-type: none"><li>• Sun is the current director of ICT and has held this post since 2011.</li><li>• His research is in the areas of computer system structure, and he has worked extensively on development of the Sugon (Dawning) supercomputer series.</li><li>• He possesses a bachelor's degree in computer science from Peking University and a Ph.D. in engineering from CAS.</li></ul>
	<p><b>Xu Junru (李锦涛)</b><sup>94</sup></p> <ul style="list-style-type: none"><li>• Xu is the current party secretary and deputy director of ICT.</li><li>• He has worked extensively in the formulation and implementation of the 863 Program.<sup>95</sup></li><li>• He serves as a special expert for the State Council of the PRC.</li><li>• He possess a Ph.D. in applied computing from CAS.</li></ul>

<sup>92</sup> <http://www.gdpx.com.cn/organization/201310397.shtm>, September 12, 2016.

<sup>93</sup> <http://www.ict.cas.cn/jssgk/xrld/>, accessed September 14, 2016.

<sup>94</sup> <http://www.ict.cas.cn/jssgk/xrld/>, accessed September 14, 2016.

<sup>95</sup>

[http://baike.baidu.com/link?url=bYINwt8tflSEL2SrBh2M04Qw2S2efmSHXUOF6wmasSyxAlpt\\_jztFZkl8gEeZ1xtlY9Z-\\_2bFrImQG\\_i\\_TgbseSdzzNIFJP1vamybn0MIW\\_](http://baike.baidu.com/link?url=bYINwt8tflSEL2SrBh2M04Qw2S2efmSHXUOF6wmasSyxAlpt_jztFZkl8gEeZ1xtlY9Z-_2bFrImQG_i_TgbseSdzzNIFJP1vamybn0MIW_), accessed September 14, 2016.



### Profile III: Tang Zhimin (唐志敏)

- Tang Zhimin heads THATIC as CEO and Chairman, and is affiliated with three THATIC shareholders that hold 53.28% of the company.
- Tang Zhimin is a leading researcher and expert on chip design and high performance computing, including for processors used in PLA equipment.
- As of 2014 Tang was the CTO of Sugon Information Industry Co., Ltd., a registered military supplier profiled on page 17.
- Tang is the CEO for both joint ventures between THATIC and AMD.
- The graphic below displays Tang's positions with THATIC and relevant institutions.

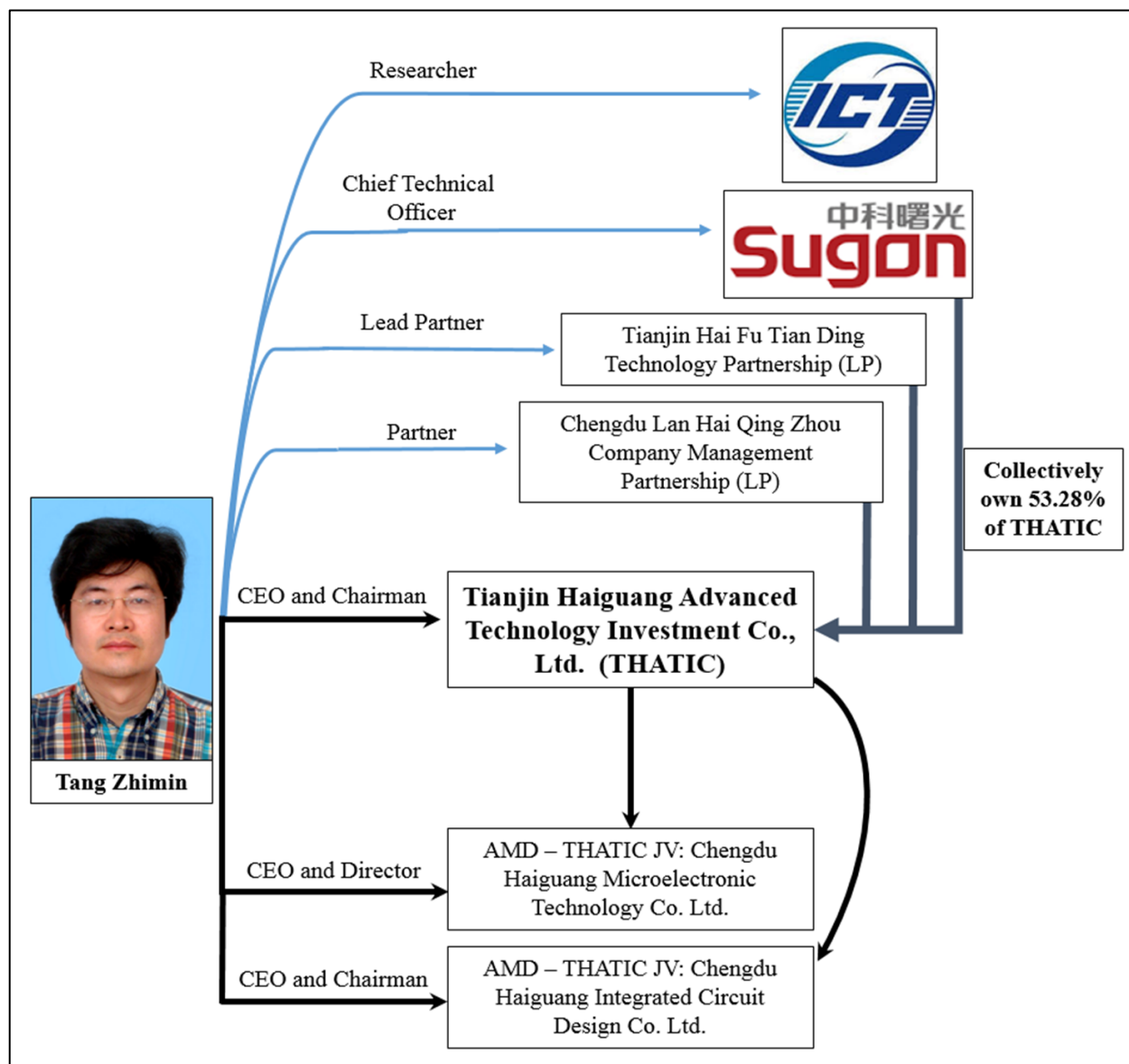


Figure 4: Summary of ties between Tang Zhimin, THATIC, and relevant entities.

## Overview

Tang Zhimin is a leading Chinese expert on integrated circuit designs, strongly advocates China's development of "indigenous" processors, and holds numerous positions that control or influence THATIC. Tang served as a member of the Expert Committee on Computer Software and Hardware under the 863 Program for the 10<sup>th</sup> Five Year Plan (2001-2005), giving him access to and influence over China's state plans and other policies for these technologies.<sup>96</sup> He has also served as a member of the computer science evaluation group for the National Natural Science Foundation of China, Vice President of the CAS Graduate School for Information Studies and Engineering, and executive assistant editor of *Chinese Journal of Computers* (计算机学报).<sup>97</sup>

Tang served as the Chief Scientist (首都科学家) for the "High-Performance General-Purpose CPU Chip Development" program, leading "every step of progress" since its start for the "Godson" (Loongson) chip.<sup>98</sup> In 2003 Tang co-authored an article describing the architecture of the Godson-1, as well as its importance as China's first fully controllable and "indigenous" processor. In the article Tang laments how far China lagged behind foreign countries in CPU technologies, resulting in a dependence on imported technologies that presents China with economic restraints and threats to national security. Consequently, China's economy, national defense, and security "necessitate the development of CPU technology with indigenous copyrights, and to use this to spur the development of memory, ASIC, and other integrated circuit technologies."<sup>99</sup>

More recently, in December 2013, Tang was one of six leading Chinese IT experts to comment on China's computer and cybersecurity after allegations of U.S. cyberespionage. Tang proudly discusses the leading role of Sugon, where he served as CTO, in developing the Godson series of chips since 2002, and that the chip is used in Longteng (龙腾 / Dragon) series of servers.<sup>100</sup> As discussed in the Sugon chapter, Sugon is licensed to provide Longteng servers and desktop computers to the PLA.<sup>101</sup> He elaborates that Sugon developed components, BIOS, and software for these products and others. Furthermore, "After 11 years of sharpening and development, Sugon's indigenous security products and solutions are already widely used in the 2012 annual "Core Electronics Components, High-End Common-Use Chips, and Foundational Software Products" ( "核高基" ),<sup>102</sup> the Shenzhen Cloud Computing Center, the Wuxi Cloud Computing Center, as well as science and research, national defense, etc., in order to provide strong assurances to national information security."<sup>103</sup>

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<sup>96</sup> <http://news.sina.com.cn/c/2006-05-02/16019771135.shtml>

<sup>97</sup> <http://news.sina.com.cn/c/2006-05-02/16019771135.shtml>

<sup>98</sup> <http://news.sina.com.cn/c/2006-05-02/16019771135.shtml>

<sup>99</sup> Hu Weiwu[胡伟武]and Tang Zhimin[唐志敏], "Architecture of the Godson-1 Processor" [龙芯 1 号处理器结构设计], *Chinese Journal of Computers* [计算机学报], vol. 26, no. 4, April 2003, pp. 385-396.

<sup>100</sup> [http://semi.cena.com.cn/2013-12/10/content\\_204231.htm](http://semi.cena.com.cn/2013-12/10/content_204231.htm),

<sup>101</sup> Original Chinese product names: 曙光龙腾服务器 L640-G15 (龙芯 3B 平台), 曙光龙腾桌面计算机 L300-G10 (龙芯 3B 平台), and 曙光龙腾服务器 L620-G15 (龙芯 3B 平台).

<http://www.weain.mil.cn/cgcms/Enterprise/detail?SiteID=122&ContentID=524107>, accessed August 15, 2016.

<sup>102</sup> "Core Electronic Devices, High-end Generic Chips and Basic Software" "核心电子器件、高端通用芯片及基础软件产品 / 核高基" was one of 16 major S&T projects in the "Medium- to Long-Term Plan for the Development of Science and Technology (2006-2020)."

<sup>103</sup> [http://semi.cena.com.cn/2013-12/10/content\\_204231.htm](http://semi.cena.com.cn/2013-12/10/content_204231.htm),

Tang holds numerous positions that directly control and influence THATIC, as displayed in Figure 4. His direct roles in THATIC are the following:

- Chief Executive Officer (CEO), Chairman, and original co-founder of THATIC itself;<sup>104</sup>
- CEO and Director of Chengdu Haiguang Microelectronic Technology Co. Ltd. (a joint venture between AMD of THATIC);<sup>105</sup> and
- CEO and Chairman of Chengdu Haiguang Integrated Circuit Design Co. Ltd. (a second a joint venture between AMD of THATIC).<sup>106</sup>

Tang also hold or recently held leading positions in three entities that collectively hold 53.28% of THATIC's shares. His current positions at these entities and their respective shares of THATIC are the following:<sup>107</sup>

- Served as Chief Technical Officer of Sugon Information Industry Co., Ltd., which holds 26.46% of THATIC's shares;
- Lead Partner of Tianjin Hai Fu Tian Ding Technology Partnership LP, which holds 17.01% of THATIC shares; and
- Partner of Chengdu Lan Hai Qing Zhou Company Management Partnership (LP), which holds 9.81% of THATIC shares.

#### **Other Biographical Information and Research**

- Born in Jiangsu in May 1966, Tang received his degree in computer systems architecture from Nanjing University in 1985 and now appears to live in Beijing's Haidian District.<sup>108</sup>  
109
- Tang is a researcher at the Chinese Academy of Sciences Institute of Computing Technology working at the State Key Lab of Computer Architecture.<sup>110</sup>
- Tang's research focuses on computer system architectures, digital signals processing, and super large scale integrated circuit design.<sup>111</sup>
- Tang graduated from Nanjing University with a degree in computer systems architecture in 1985. He worked at the Chinese Academy of Sciences Institute of Computing Technology from 1985 to 1990.<sup>112</sup>
- In 1999, Tang was an expert group member for an 863 Program major project on creating a national high-performance computing environment.<sup>113</sup>
- From 2001 to 2004, Tang was a topic group management expert for the 863 Program computer software technology topic.<sup>114</sup>

<sup>104</sup> <http://www.tianyancha.com/company/2352013801>, accessed September 13, 2016. Note that Tang is no longer a direct shareholder, but his profile demonstrates his ongoing financial interests in THATIC through other entities.

<sup>105</sup> <http://www.tianyancha.com/company/2354071747>, accessed September 13, 2016.

<sup>106</sup> <http://www.tianyancha.com/company/2352013801>, accessed September 13, 2016.

<sup>107</sup> Corporate records accessed at <http://tjcredit.gov.cn> on August 16, 2016. Direct link to record unavailable.

<sup>108</sup> [http://www.sse.com.cn/disclosure/listedinfo/announcement/c/2016-01-06/603019\\_20160106\\_1.pdf](http://www.sse.com.cn/disclosure/listedinfo/announcement/c/2016-01-06/603019_20160106_1.pdf); and <http://news.sina.com.cn/c/2006-05-02/16019771135.shtml> accessed August 17, 2016.

<sup>109</sup> [http://sourcedb.ict.cas.cn/cn/jssrck/201202/t20120217\\_3441943.html](http://sourcedb.ict.cas.cn/cn/jssrck/201202/t20120217_3441943.html), accessed August 17, 2016.

<sup>110</sup> <http://people.ucas.ac.cn/~0012887?language=en>, accessed September 13, 2016.

<sup>111</sup> [http://sourcedb.ict.cas.cn/cn/jssrck/201202/t20120217\\_3441943.html](http://sourcedb.ict.cas.cn/cn/jssrck/201202/t20120217_3441943.html), accessed August 17, 2016.

<sup>112</sup> [http://sourcedb.ict.cas.cn/cn/jssrck/201202/t20120217\\_3441943.html](http://sourcedb.ict.cas.cn/cn/jssrck/201202/t20120217_3441943.html), accessed August 17, 2016.

<sup>113</sup> [http://sourcedb.ict.cas.cn/cn/jssrck/201202/t20120217\\_3441943.html](http://sourcedb.ict.cas.cn/cn/jssrck/201202/t20120217_3441943.html), accessed August 17, 2016.

<sup>114</sup> [http://sourcedb.ict.cas.cn/cn/jssrck/201202/t20120217\\_3441943.html](http://sourcedb.ict.cas.cn/cn/jssrck/201202/t20120217_3441943.html), accessed August 17, 2016.

- His research projects have been supported by the 863 Program and have focused on at least two Sugon computing systems.
  - Tang was responsible for a research project through the 863 Program based on the Sugon 3000 distributed shared memory system (“基于曙光 3000 的分布式共享存储系统”).<sup>115</sup> One biography lists this research as occurring between 1997 and 2000.<sup>116</sup>
  - Tang’s ICT profile reports an additional publication on shared memory and message passing comparison of the Dawning 1000A system published in 2000.<sup>117</sup>

### Summary of Business Roles

- Chairman, CEO, and founding member of THATIC.<sup>118</sup>
- CEO and Director of Chengdu Haiguang Microelectronic Technology Co. Ltd. (a joint venture between AMD of THATIC).<sup>119</sup>
- CEO and Chairman of Chengdu Haiguang Integrated Circuit Design Co. Ltd. (a second a joint venture between AMD of THATIC)<sup>120</sup>
- CTO at Sugon Information Industry.
  - It is unclear when Tang started or left this position, but reports dating from February 2013, December 2014, and April 2014 refer to Tang as the company’s CTO.<sup>121</sup>
- Executive partner at Tianjin Hai Fu Tian Ding Technology Partnership, an investor in THATIC.<sup>122</sup>
- Partner in Chengdu Lan Hai Qing Zhou Company Management Partnership, a limited partnership set up in March 2016 and an investor in THATIC.<sup>123</sup>
- Director and CEO Chengdu Haiguang Microelectronic Technology Co., Ltd. (成都海光微电子技术有限公司), a subsidiary of THATIC.<sup>124</sup>
- Legal representative, chairman and CEO at Chengdu Haiguang Integrated Circuit Design Co., Ltd. (成都海光集成电路设计有限公司), a subsidiary of THATIC.<sup>125</sup>

<sup>115</sup> [http://sourcedb.ict.cas.cn/cn/ds/201202/t20120217\\_3441943.html](http://sourcedb.ict.cas.cn/cn/ds/201202/t20120217_3441943.html), accessed September 16, 2016.

<sup>116</sup> <http://baike.baidu.com/item/%E5%94%90%E5%BF%97%E6%95%8F/29425>, accessed September 16, 2016.

<sup>117</sup> [http://sourcedb.ict.cas.cn/cn/ds/201202/t20120217\\_3441943.html](http://sourcedb.ict.cas.cn/cn/ds/201202/t20120217_3441943.html), accessed September 16, 2016.

<sup>118</sup> <http://www.tianyancha.com/company/2352013801>, accessed September 13, 2016.

<sup>119</sup> <http://www.tianyancha.com/company/2354071747>, accessed September 13, 2016.

<sup>120</sup> <http://www.tianyancha.com/company/2352013801>, accessed September 13, 2016.

<sup>121</sup> <http://news.jkbk4f.com/dczdzf/7806.html>; <http://www.sugon.com/about/detail/id/334.html>;

<http://www.ccf.org.cn/sites/ccf/xhdtmry.jsp?contentId=2797257652981>, accessed September 16, 2016.

<sup>122</sup> <http://tjcredit.gov.cn/>, accessed August 17, 2016.

<sup>123</sup> AIC records accessed at <http://gsxt.scaic.gov.cn/> on September 7, 2016. Direct link to record unavailable.

<sup>124</sup> <http://www.tianyancha.com/company/2354071747>, accessed September 13, 2016.

<sup>125</sup> <http://www.tianyancha.com/company/2352013801>, accessed September 13, 2016.

## **Profile IV: Sugon Information Industry Co., Ltd. (曙光信息产业股份有限公司)**

### **Key Findings**

- Sugon Information Industry (Sugon, formerly known as Dawning) is China's leading developer of high performance supercomputers and a leader in China's cloud computing initiatives. It receives substantial support from the Chinese Academy of Sciences (CAS) and the 863 Program. The 863 Program is a national research program managed by the Ministry of Science and Technology with significant input and cooperation from the People's Liberation Army (PLA).
- Sugon develops hardware and software products for the PLA, defense industry, and public security services. Its website states explicitly that "making contributions to China's national defense and security is the fundamental mission of Sugon."
- Sugon is registered as a military supplier of servers and desktop computers, and in June 2016 was awarded two contracts from the Ordnance Technology Research Institute of the PLA Ordnance Engineering College for Local Area Network hardware equipment, industrial personal computers, and data protection software worth RMB 7.64 million in total.
- Sugon has provided numerous IT products and solutions to Chinese domestic security agencies and the Chinese judicial system.
- In 2015, Sugon announced plans to partner with 100 Chinese cities to build cloud computing centers over the next five years. Plans call for partnering with local governments on projects that will provide data sharing and analytics platforms for government data.
- Sugon's Dawning high-performance computing systems have been used by the Chinese space program for applications including the Shenzhou manned space program and Chang'e lunar landing program.

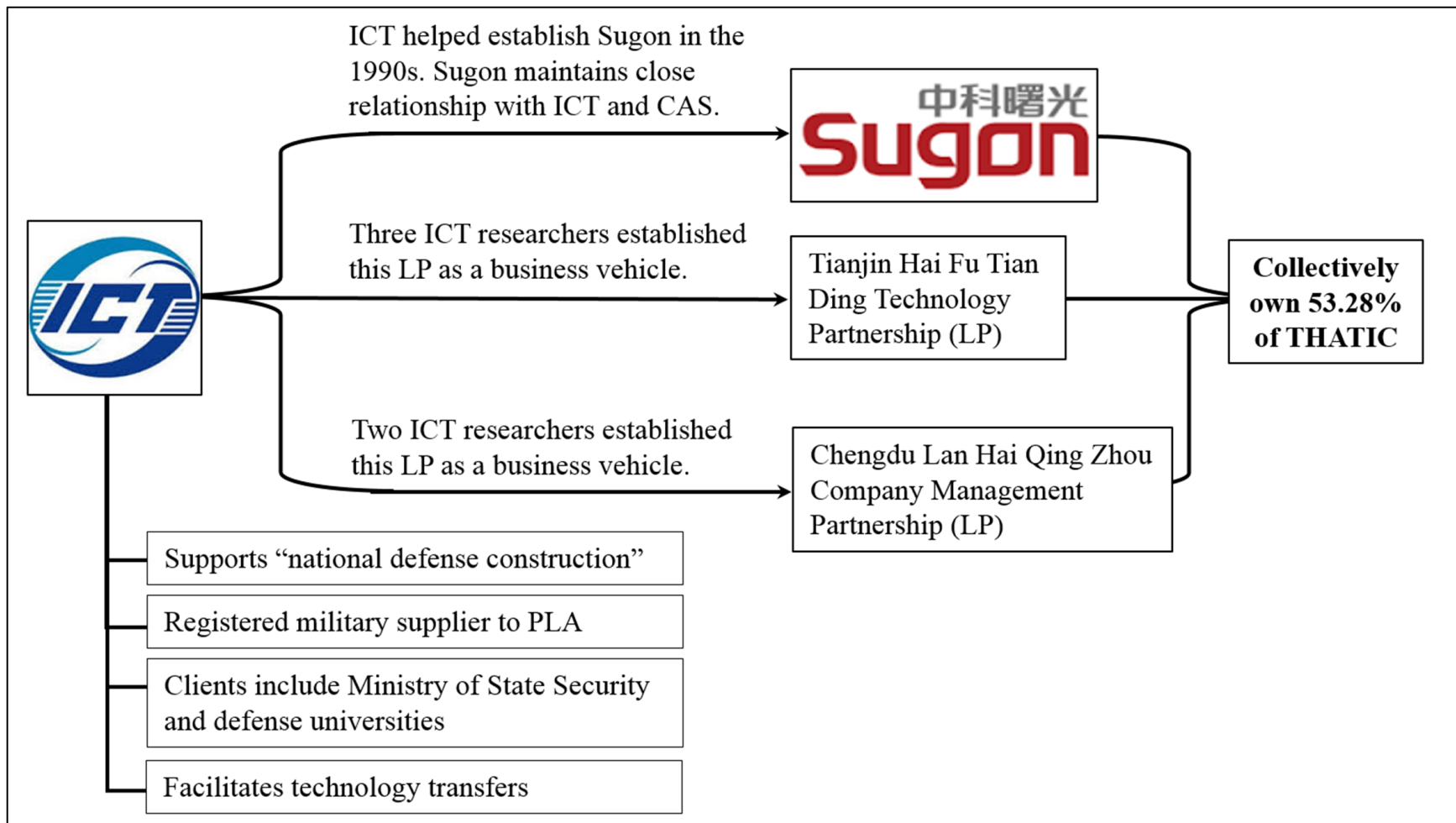


Figure 5: Summary of ties between Sugon, THATIC, and ICT, as well as other ties of concern.



## Company Profile

Sugon Information Industry (Sugon, formerly known as Dawning) is China's leading developer of high performance supercomputers. It is strongly supported by the Chinese Academy of Sciences and the 863 Program, a research program managed by the Ministry of Science and Technology with input from the Chinese military. Sugon develops and manufactures high-performance computers, general servers, and storage products, and engages in software design, system integration, and technical support for high-performance computers. Sugon listed on the Shanghai Stock Exchange in 2014 under ticker number 603019.<sup>126</sup> In 2015, 59% of Sugon's revenue was from government and public utilities clients.<sup>127</sup>

Sugon was established through resources from the CAS Institute of Computing Technology and the National Research Center for Intelligent Computing Systems in the 1990s as China's first local high-performance computer vendor.<sup>128</sup> It has produced a variety of well-known high end computer systems, including the Dawning I and Dawning 1000 to 6000 systems.<sup>129</sup> It has held the top position on annual lists of top Chinese supercomputer developers since 2009. Sugon has been involved in planning China's national cloud computing strategy and operates more than ten cloud computing centers in China. Its Chengdu Cloud Computing Center was China's first major commercially-operated cloud computing center when it launched in December 2009. The center uses Sugon's Dawning 5000 supercomputer and supports government and scientific computing applications in western China.<sup>130</sup> Sugon's Shenzhen Cloud Computer Center hosts Sugon's Nebulae supercomputer, which was ranked the second most powerful computer in the world in June 2010.<sup>131</sup>

Sugon offers a complete range of cloud solutions spanning frameworks, facilities, operating systems, storage, and security, and it recently launched a joint venture with US-based virtualization software developer VMWare to provide better cloud virtualization services.<sup>132</sup>

### Corporate Registration Information for Sugon Information Industry Co., Ltd.<sup>133</sup>

<b>Corporate Registration Number</b>	120193000007204	
<b>Type of Company</b>	Limited liability stock corporation, market listed 股份有限公司(上市)	
<b>Registered Address</b>	Tianjin, Huayuan Industrial Zone (Beyond Ring), Haitai Huake Street No. 15, Floors 1-3. 华苑产业区（环外）海泰华科大街 15 号 1-3 层	
	<i>Phone</i>	01056308618

<sup>126</sup> <http://www.sugon.com/en/about/intro.html>, accessed August 26, 2016.

<sup>127</sup> <http://www.forbes.com/sites/janeho/2016/05/24/vmware-sets-up-first-china-joint-venture-with-high-performance-computer-maker-sugon/#4d731f7f15b1>, accessed August 15, 2016.

<sup>128</sup> <http://hpc.sugon.com/en/more.html>, accessed August 26, 2016.

<sup>129</sup> <http://insidehpc.com/2016/02/sugon-hpc/>, accessed August 26, 2016.

<sup>130</sup> <http://insidehpc.com/2016/02/sugon-hpc/>, accessed August 26, 2016.

<sup>131</sup> [https://en.wikipedia.org/wiki/Nebulae\\_\(computer\)](https://en.wikipedia.org/wiki/Nebulae_(computer)), accessed August 26, 2016.

<sup>132</sup> <http://insidehpc.com/2016/02/sugon-hpc/>, accessed August 26, 2016.

<sup>133</sup> SAIC records accessed at <http://tjcredit.gov.cn/>, accessed August 15, 2016. Direct link to record unavailable.

<b>Other Contact Information</b>	<i>Website</i>	www.sugon.com
	<i>Email</i>	mashp@sugon.com
<b>Date of Incorporation</b>	March 7, 2006	
<b>Registered Capital</b>	RMB 643.02397 mln	
<b>Authorized Scope of Business</b>	Electronic information and software technology development; consulting services, technology transfer, and training; manufacturing and selling computer and peripheral equipment and software; computer system integration; logistics management; technology and goods import and export; equipment and facility leasing.	

## Political or Government Connections

### Military Connections

- Sugon has received substantial funding from the 863 Program, a national research program managed by the Ministry of Science and Technology with significant input and cooperation from the People's Liberation Army.
- Sugon's Dawning high-performance computing systems have been used by the Chinese space program for applications including the Shenzhou manned space program and Chang E lunar landing program.

### Government Connections

- Sugon's president Li Jun was one of the top Chinese tech executives who met with China's President Xi Jinping in Seattle last September.<sup>134</sup>
- Sugon's Dawning supercomputers are used for a wide range of high-performance computing applications, including government service applications. National security concerns have been cited by the company and the Chinese government as significant motivations for developing domestic high-performance computing technology within China.<sup>135</sup>
- In 2015, Sugon announced plans to partner with 100 Chinese cities to build cloud computing centers over the next five years. Plans call for partnering with local governments on projects that will provide data sharing and analytics platforms for government data.<sup>136</sup>
- Sugon reportedly provides IT products to government customers for "sensitive sectors" such as public security.<sup>137</sup>

## Customers and Partners of Concern

### Military

- Sugon is registered as a supplier for the PLA on the Weapons Equipment Acquisition Information Network (WEAIN). Its offered products (pictured below) are servers and workstations, specifically the Sugon Loongson/Godson Server L640-G15 (Loongson/Godson 3B Platform), the Sugon Loongson/Godson Desktop Computer L300-

<sup>134</sup> <http://www.forbes.com/sites/liyanchen/2015/09/24/the-2-5-trillion-photo-chinas-president-xi-jinping-meets-with-heads-of-apple-amazon-and-more/#2eac266d2748>, accessed August 15, 2016.

<sup>135</sup> <http://insidehpc.com/2016/02/sugon-hpc/>, accessed August 26, 2016.

<sup>136</sup> [http://www.chinadaily.com.cn/beijing/2015-03/25/content\\_19903937.htm](http://www.chinadaily.com.cn/beijing/2015-03/25/content_19903937.htm), accessed August 29, 2016.

<sup>137</sup> [http://www.chinadaily.com.cn/beijing/2015-03/25/content\\_19903937.htm](http://www.chinadaily.com.cn/beijing/2015-03/25/content_19903937.htm), accessed August 29, 2016.



G10 (Loongson/Godson 3B Platform), and the Sugon Loongson/Godson Server L620-G15 (Loongson/Godson 3B Platform).<sup>138</sup>



Figure 6: Sugon Loongson/Godson Server L640-G15 (Loongson/Godson 3B Platform), the Sugon Loongson/Godson Desktop Computer L300-G10 (Loongson/Godson 3B Platform), and the Sugon Loongson/Godson Server L620-G15 (Loongson/Godson 3B Platform).

- On May 16, 2016, the WEAIN procurement website announced that PLA Unit 63908 awarded Sugon two contracts, one for “Local Area Network (LAN) hardware equipment and industrial personal computers (IPCs)” worth RMB 5.78 million, and the other for “Data Protection Software” worth RMB 1.86 million.<sup>139</sup> Unit 63908 is the military unit cover designator for the Ordnance Technology Research Institute (军械技术研究所) of the PLA Ordnance Engineering College (军械工程学院).<sup>140</sup>
- Sugon develops software products for the Chinese People’s Liberation Army. Its website states explicitly that “making contributions to China’s national defense and security is the fundamental mission of Sugon.”<sup>141</sup>
- Two military software products are listed on the Sugon website, including a “Sugon Military Virtual Desktop Solution” and a “Sugon Military Simulation Cloud Solution.”<sup>142</sup>
- Regarding its military virtual desktop solutions, Sugon states:
  - “Sugon can not only provide virtual desktop solutions based on VMware, Citrix and other international products, but also provide solutions based on Sugon CloudView and other domestic independent controllable technology, which reduces the safety risks.”<sup>143</sup>
  - “Sugon deployed and implemented numerous virtual desktop system of military industry. It has a lot of talents experienced in design, testing and implementation.”<sup>144</sup>

#### Defense Industry

- On January 15, 2016, Sugon signed a strategic cooperation agreement with the Chinese Institute of Command and Control (CICC) to develop indigenous technologies, namely in

<sup>138</sup> Original Chinese product names: 曙光龙腾服务器 L640-G15 (龙芯 3B 平台), 曙光龙腾桌面计算机 L300-G10 (龙芯 3B 平台), and 曙光龙腾服务器 L620-G15 (龙芯 3B 平台).

<sup>139</sup> <http://www.weain.mil.cn/cgcms/Enterprise/detail?SiteID=122&ContentID=524107>, accessed August 15, 2016.

<sup>139</sup> <http://www.weain.mil.cn/cggg/zbgg1/522553.html>, accessed August 15, 2016.

<sup>140</sup> <http://jsyjh.net/forum.php?mod=viewthread&tid=22132>, accessed August 15, 2016.

<sup>141</sup> <http://www.sugon.com/en/solution/successcase/id/140209.html>, accessed August 29, 2016.

<sup>142</sup> <http://www.sugon.com/en/solution/successcase/id/140209.html>, accessed August 29, 2016.

<sup>143</sup> <http://www.sugon.com/en/solution/industrydetail/id/756.html>, accessed August 29, 2016.

<sup>144</sup> <http://www.sugon.com/en/solution/industrydetail/id/756.html>, accessed August 29, 2016.

cloud computing, for defense and security applications.<sup>145</sup> Sugon CEO Li Jun (历军) and director general of CICC Dai Hao (戴浩) signed the agreement. Dai said the cooperation would help China's military information and command and control (C2) systems better utilize cloud and smart technologies.<sup>146</sup> Sugon's cloud-computing of autonomous controls and big data technology will help innovate new platforms and provide support for China's joint command platforms and military command information systems.<sup>147</sup> Li Jun told reporters that the CICC contributes to military-fusion (军民融合) in China, or the systematic integration of civilian and military efforts in dual-use technologies. In this case, Sugon and CICC will cooperate on big data and cloud computing by linking programs, expanding technologies, and displaying capabilities.<sup>148</sup>

- Sugon was a “strategic partner” for the 2<sup>nd</sup> China Military and Civilian Integration Expo (第二届中国军民融合技术装备博览会), an event that brings together military end-users with military and civilian companies and research institutes. The event's leading sponsor was the China Association for Science and Technology (CAST 中国科学技术协会), and its host was CICC. The event's supporting units include the Ministry of Science and Technology (MOST), China North Industries Group Corporation (NORINCO), China South Industries Group Corporation, the State Administration of Science, Technology and Industry for National Defense (SASTIND), China Aerospace Science and Industry Corporation (CASIC), and China Electronics Technology Group Corporation (CETC).<sup>149</sup>

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<sup>145</sup> <http://mil.huanqiu.com/china/2016-01/8392968.html>; <http://news.qq.com/a/20160116/018986.htm>; <http://news.sina.com.cn/c/2016-01-16/doc-ifynqrkc6508021.shtml>, accessed August 15, 2016.

<sup>146</sup> A more literal interpretation is that the partnership will help “cloud-ify” and “smart-ify” China's military information systems.

<sup>147</sup> <http://mil.huanqiu.com/china/2016-01/8392968.html>; <http://news.qq.com/a/20160116/018986.htm>; <http://news.sina.com.cn/c/2016-01-16/doc-ifynqrkc6508021.shtml>, accessed August 19, 2016.

<sup>148</sup> <http://mil.huanqiu.com/china/2016-01/8392968.html>; <http://news.qq.com/a/20160116/018986.htm>; <http://news.sina.com.cn/c/2016-01-16/doc-ifynqrkc6508021.shtml>, accessed August 19, 2016.

<sup>149</sup> <http://www.chinanews.com/mil/hd2011/2016/07-04/652824.shtml>, accessed August 19, 2016.

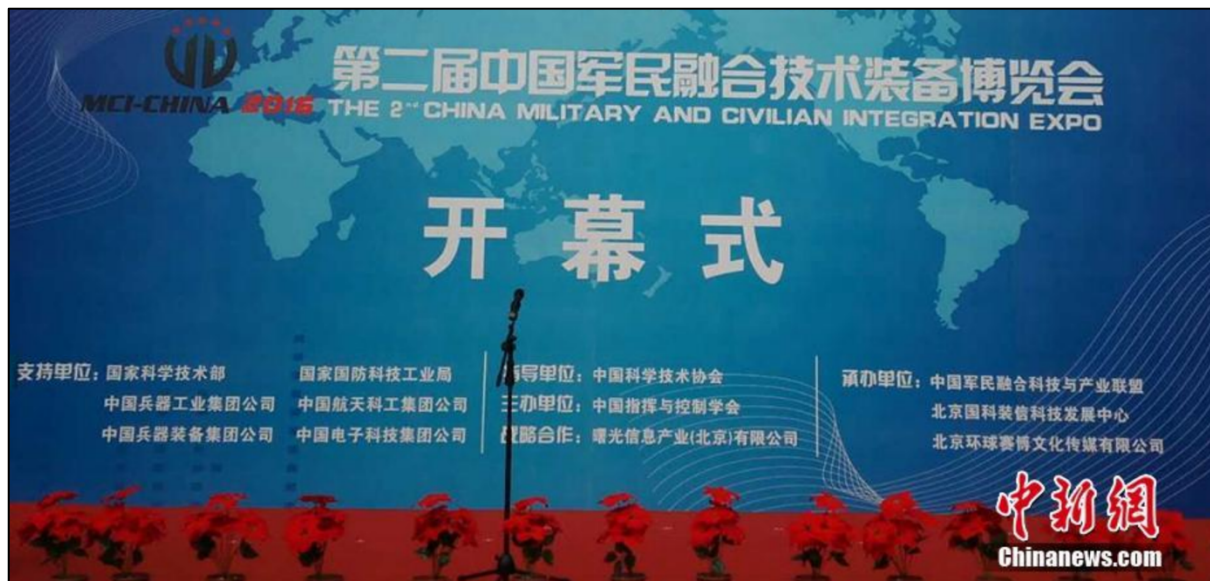


Figure 7: Sugon is listed under "strategic cooperation" (战略合作) in this backdrop for the opening ceremony of the 2nd China Military and Civilian Integration Expo in July 2016.<sup>150</sup>

## Public Security

- Sugon has provided numerous IT products and solutions to Chinese domestic security agencies and the Chinese judicial system.<sup>151</sup>

## Key Personnel

Based on searches of this entity's website, corporate data, and other online information, key personnel at Sugon include the following individuals:

### Senior management

<p>152</p>	<p><b>Li Jun (历军)</b></p> <ul style="list-style-type: none"> <li>• Li is CEO at Sugon.<sup>153</sup></li> <li>• In 2015, Li was one of several Chinese IT business leaders to meet with Chinese President Xi Jinping in Redmond, Washington at the U.S.-China Internet Industry Forum, along with the CEOs of other Chinese firms such as Tencent, Alibaba, Baidu, Lenovo, Sina, Sohu, Qihoo-360, and JD.com.<sup>154</sup></li> </ul>
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<sup>150</sup> <http://www.chinanews.com/mil/hd2011/2016/07-04/652824.shtml>, accessed August 19, 2016.

<sup>151</sup> <http://www.sugon.com/solution/successcase/id/140205.html>, accessed August 29, 2016.

<sup>152</sup> <http://www.sugon.com/en/about/detail/id/241.html>, accessed August 29, 2016.

<sup>153</sup> [http://www.chinadaily.com.cn/beijing/2015-03/25/content\\_19903937.htm](http://www.chinadaily.com.cn/beijing/2015-03/25/content_19903937.htm), accessed August 29, 2016.

<sup>154</sup> <http://www.allchinatech.com/what-did-chinas-tech-bosses-have-to-say-about-xis-visit-to-seattle/>, accessed August 29, 2016.



### Wang Zhengfu (王正福)

- Wang is chief operating officer at Sugon.<sup>155</sup>
- Wang was previously CEO of Sugon as of 2012.<sup>156</sup>

<sup>155</sup> <http://www.seagate.com/jp/ja/about-seagate/news/seagate-partners-with-chinas-sugon-to-tap-fast-expanding-data-center-market-pr-master/>, accessed August 29, 2016.

<sup>156</sup> <http://www.sugon.com/en/about/detail/id/244.html>, accessed August 29, 2016.

## Profile V: Chengdu Industry Investment Group Co., Ltd. (成都工业投资集团有限公司)

### Key Findings

- Chengdu Industry Investment Group is a large, state-owned investment corporation established in August 2001.<sup>157</sup> It has been called “the most important financial platform in the city of Chengdu.”<sup>158</sup>
- Chengdu Industry Investment Group is closely integrated with the Chengdu municipal government and the Chinese Communist Party in Sichuan province.
- In 2014, a former chairman of Chengdu Industry Investment Group was sentenced to life in prison for taking bribes in connection with his work.

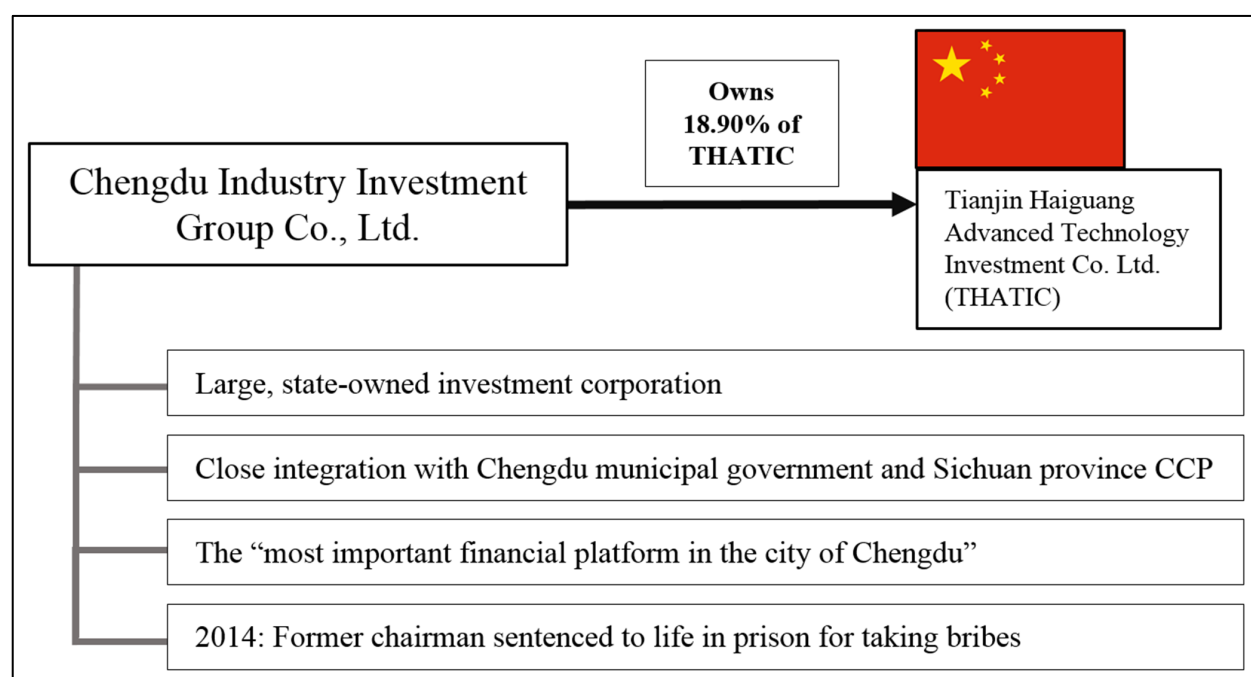


Figure 8: Summary of relevant ties and information for Chengdu Industry Investment Group Co., Ltd.

### Company Profile

#### Overview

Chengdu Industry Investment Group is a large, state-owned investment corporation established in August 2001.<sup>159</sup> It has been called “the most important financial platform in the city of Chengdu.”<sup>160</sup> The group engages in industrial investment, zone construction, financial guaranteeing, asset operation and management, and industrial land holding. It controls 33

<sup>157</sup> [http://www.cdii.com.cn/itemIndex.json?accesspage=itemIndex&item\\_id=jituanjieshao](http://www.cdii.com.cn/itemIndex.json?accesspage=itemIndex&item_id=jituanjieshao), accessed August 16, 2016.

<sup>158</sup> <http://www.voanews.com/a/businessmen-politicians-targeted-in-sichuan-corruption-probe/1852765.html>, accessed August 18, 2016.

<sup>159</sup> [http://www.cdii.com.cn/itemIndex.json?accesspage=itemIndex&item\\_id=jituanjieshao](http://www.cdii.com.cn/itemIndex.json?accesspage=itemIndex&item_id=jituanjieshao), August 16, 2016.

<sup>160</sup> <http://www.voanews.com/a/businessmen-politicians-targeted-in-sichuan-corruption-probe/1852765.html>, accessed August 18, 2016.

subsidiary holding companies and managed entities and acts as a major investment platform for Chengdu's economic development. As of December 2015, the group had registered assets of RMB 5.5 bln, total assets of RMB 40.2 bln, and net assets of RMB 16.2 bln.<sup>161</sup>

Chengdu Industry Investment Group has invested more than RMB 33 bln in industrialization projects operated by the Sichuan branches of Sinopec and Taiwan-based Hon Hai Precision Industry (Foxconn) and has invested more than RMB 10 mln in infrastructure projects for economic and industrial development zones throughout Chengdu. It has provided financing underwriting support for more than RMB 210 bln in loans issued to more than 37,000 medium- and small-sized enterprises. In 2014, the group was identified as a pilot enterprise for state-owned asset investment company reforms by the Chengdu Communist Party Committee, Chengdu municipal government, and Chengdu State-owned Asset Supervision and Administration Commission.<sup>162</sup>

In 2012, Dai Xiaoming, former chairman of Chengdu Industry Investment Group, was investigated under suspicion of corruption in connection with Li Chuncheng, then deputy secretary of the Sichuan Province Committee of the Community Party of China.<sup>163</sup> Dai was reportedly sentenced to life in prison in May 2014 for corruption involving taking hundreds of millions of RMB in bribes.<sup>164</sup>

Corporate Registration and Contact Information for Chengdu Industry Investment Group.<sup>165</sup>

<b>Corporate Registration Number</b>	510100000048722 <sup>166</sup>	
<b>Type of Company</b>	Limited liability company (state-owned) (有限责任公司(国有独资)) <sup>167</sup>	
<b>Registered Address</b>	Chengdu, Qingyang District, Shuncheng Street, No. 221 成都市青羊区顺城大街 221 号 <sup>168</sup>	
	<i>Phone</i>	86-28-8669-9022 <sup>169</sup>

<sup>161</sup> [http://www.cdii.com.cn/itemIndex.json?accesspage=itemIndex&item\\_id=jituanjieshao](http://www.cdii.com.cn/itemIndex.json?accesspage=itemIndex&item_id=jituanjieshao), accessed August 16, 2016.

<sup>162</sup> [http://www.cdii.com.cn/itemIndex.json?accesspage=itemIndex&item\\_id=jituanjieshao](http://www.cdii.com.cn/itemIndex.json?accesspage=itemIndex&item_id=jituanjieshao), accessed August 17, 2016.

<sup>163</sup> <http://www.lawinfochina.com/search/displayinfo.aspx?id=10507&lib=news>; <http://www.chengduliving.com/the-case-of-li-chuncheng/>, accessed August 18, 2016.

<sup>164</sup> [http://printarchive.epochtimes.com/a1/en/sg/nnn/2015/04%20April%202015/508/Apr\\_24-May\\_7\\_15\\_lowres.pdf](http://printarchive.epochtimes.com/a1/en/sg/nnn/2015/04%20April%202015/508/Apr_24-May_7_15_lowres.pdf), <https://books.google.co.jp/books?id=zeCEAAAAQBAJ&pg=PP21&lpg=PP21&dq=Chengdu+Industry+Investment+Group&source=bl&ots=HYvkgAk9qu&sig=6dYqFSh5Bs055ori7tco2MI8STY&hl=en&sa=X&ved=0ahUKewjz1Yi0uczOAhWBk5QKHbylDM44ChDoAQg2MAU#v=onepage&q=Chengdu%20Industry%20Investment%20Group&f=false>, accessed August 18, 2016.

<sup>165</sup> SAIC records accessed at <http://gsxt.saic.gov.cn/>.

<sup>166</sup> <http://gsxt.scaic.gov.cn/>, accessed August 17, 2016.

<sup>167</sup> <http://gsxt.scaic.gov.cn/>, accessed August 17, 2016.

<sup>168</sup> <http://gsxt.scaic.gov.cn/>, accessed August 17, 2016.

<sup>169</sup> <http://www.bloomberg.com/profiles/companies/CDIIGZ:CH-chengdu-industry-investment-group-co-ltd>, accessed August 23, 2016.



<b>Other Contact Information</b>	<i>Fax</i>	86-28-8669-9029 <sup>170</sup>
	<i>Website</i>	<a href="http://www.cdii.com.cn/">http://www.cdii.com.cn/</a>
<b>Date of Incorporation</b>	August 7, 2001 <sup>171</sup>	
<b>Registered Capital</b>	RMB 5.5 bln	
<b>Authorized Scope of Business</b>	Investment, non-financial underwriting, asset operation and management, industrial real estate, commerce, consulting services, and property management. <sup>172</sup>	

## Political or Government Connections

### Military Connections

- NA.

### Government Connections

- Chengdu Municipal Government
  - Chengdu Industry Investment Group is wholly owned by the Chengdu Municipal Government.<sup>173</sup>
- Chinese Communist Party
  - Chengdu Industry Investment Group's strong ties to the Chinese Communist Party are reflected by the close relationship between former chairman Dai Xiaoming and Li Chuncheng, former deputy secretary of the Sichuan Province Committee of the Community Party of China, prior to their investigation and Dai's arrest on corruption charges.
  - As a large, state-owned enterprise, Chengdu Industry Investment Group maintains a Chinese Communist Party Committee led by senior managers at Chengdu Industry Investment Group.<sup>174</sup>

## Customers of Concern

### Military

- NA.

### Defense Industry

- NA.

<sup>170</sup> <http://www.bloomberg.com/profiles/companies/CDIIGZ:CH-chengdu-industry-investment-group-co-ltd>, accessed August 23, 2016.

<sup>171</sup> <http://gsxt.scaic.gov.cn/>, accessed August 17, 2016.

<sup>172</sup> <http://gsxt.scaic.gov.cn/>, accessed August 17, 2016.

<sup>173</sup> <https://www.b2match.eu/ninth-eu-china-cooperation-fair/participants/1520>, accessed August 18, 2016.

<sup>174</sup> [http://www.cdii.com.cn/itemIndex.json?accesspage=itemIndex&item\\_id=dangjiangongzuo](http://www.cdii.com.cn/itemIndex.json?accesspage=itemIndex&item_id=dangjiangongzuo), accessed August 23, 2016.

## Key Personnel

Based on searches of this entity's website, corporate data, and other online information, key personnel at Chengdu Industry Investment Group include the following individuals:

Partners<sup>175</sup>

 176	<b>Shi Lei (石磊)</b> <ul style="list-style-type: none"><li>• Shi is chairman of Chengdu Industry Investment Group.</li><li>• Shi is also secretary of the Chinese Communist Party Committee at Chengdu Industry Investment Group.</li><li>• Shi is also the director and Party secretary for the Chengdu Investment Promotion Committee. He has previously held a variety of investment-related positions within the Chengdu Municipal Government.<sup>177</sup></li></ul>
NA	<b>Tao Xun (陶迅)</b> <ul style="list-style-type: none"><li>• Tao is managing director of Chengdu Industry Investment Group.</li></ul>

<sup>175</sup> This table is based on corporate executives and principals identified in this company's corporate records, website, and other online media.

<sup>176</sup> <http://baike.sogou.com/v65410077.htm?fromTitle=%E7%9F%B3%E7%A3%8A&ch=ch.bk.amb>, accessed August 23, 2016.

<sup>177</sup> <http://baike.sogou.com/v65410077.htm?fromTitle=%E7%9F%B3%E7%A3%8A&ch=ch.bk.amb>, accessed August 23, 2016.



## Profile VI: Tianjin Hai Fu Tian Ding Technology Partnership (LP) (天津海富天鼎科技合伙企业（有限合伙）)

### Key Findings

- As of April 2016, Tianjin Hai Fu Tian Ding Technology Partnership (LP) controls a 17.01% stake in THATIC.<sup>178</sup>
- Tang Zhimin, a researcher at the Chinese Academy of Sciences Institute of Computing Technology, is the lead partner at Tianjin Hai Fu Tian Ding Technology Partnership. Tang and the other two partners, Liu Xinchun and Yang Xiaojun, are said to constitute the core management team for THATIC. They are also involved together in managing several other businesses.
- For more information on Tang, see page 29.

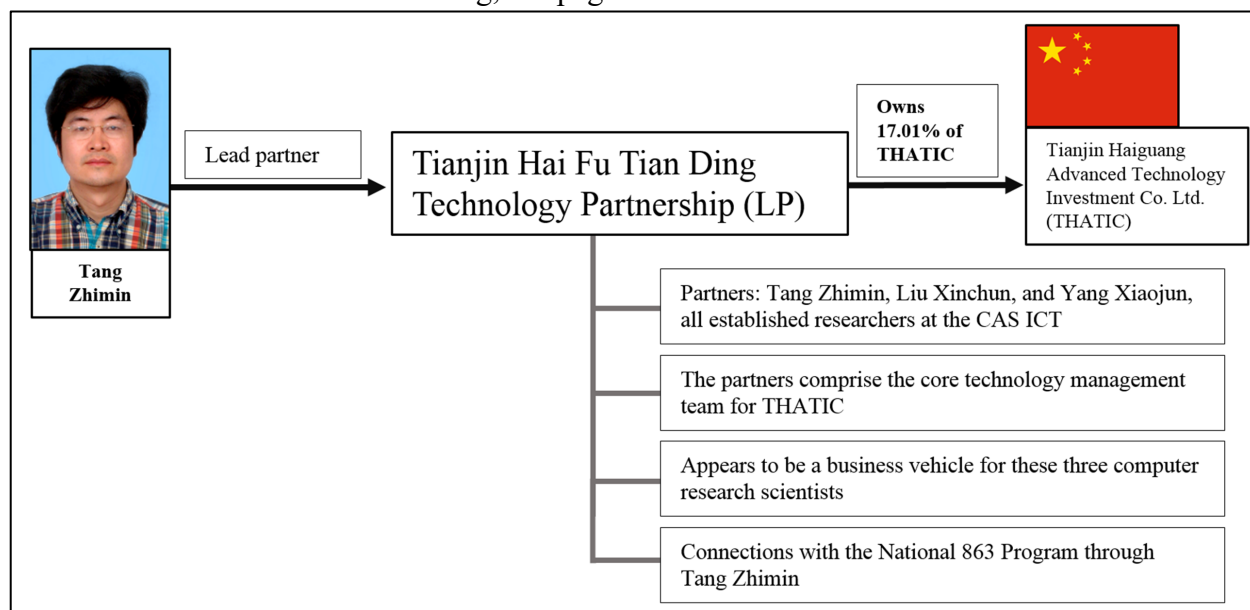


Figure 9: Summary of ties and relevant information for Tianjin Hai Fu Tian Ding Technology Partnership (LP).

### Company Profile

#### Overview

Tianjin Hai Fu Tian Ding Technology Partnership appears to be a business vehicle for three computer research scientists at the Chinese Academy of Sciences Institute of Computing Technology. The partnership's executive partner is Tang Zhimin, a researcher who has been employed at the Institute of Computing Technology since the mid-1980s and who has served as an expert committee member for the Ministry of Science and Technology's 863 Program.

The partners of Tianjin Hai Fu Tian Ding Technology Partnership are Tang Zhimin (唐志敏), Liu Xinchun (刘新春), and Yang Xiaojun (杨晓君).<sup>179</sup> Corporate registration records give a Chinese Academy of Sciences email address for Tang, which appears to be linked to the Institute

<sup>178</sup> [http://pg.jrj.com.cn/acc/Res/CN\\_RES/INDUS/2016/4/25/7faba3d2-3bda-4382-919d-57d976f11d63.pdf](http://pg.jrj.com.cn/acc/Res/CN_RES/INDUS/2016/4/25/7faba3d2-3bda-4382-919d-57d976f11d63.pdf), accessed August 17, 2016.

<sup>179</sup> <http://tjcredit.gov.cn/>, accessed August 17, 2016.

of Computing Technology.<sup>180</sup> Records list a Sugon Information Industry email address as the contact email prior to June 2016.<sup>181</sup>

A January 2016 investment statement indicates that Tianjin Hai Fu Tian Ding Technology Partnership and Tang Zhimin constitute the core technology management team for THATIC.<sup>182</sup>

Tang Zhimin's email address is also listed as the registered email address for THATIC.<sup>183</sup> Tang is listed by one online source as a director and general manager of THATIC, while Liu Xinchun is listed as a director.<sup>184</sup> Tang is also listed as the chairman of Chengdu Haiguang Integrated Circuit Design Co., Ltd. and Chengdu Haiguang Microelectronic Technology Co., Ltd., and Liu Xinchun and Yang Xiaojun are directors at both companies.<sup>185</sup>

#### Corporate Registration and Contact Information for Tianjin Hai Fu Tian Ding Technology Partnership (LP).<sup>186</sup>

<b>Corporate Registration Number</b>	120193000099542 <sup>187</sup>	
<b>Type of Company</b>	Limited partnership <sup>188</sup> 有限合伙企业	
<b>Registered Address</b>	Tianjin Huayuan Industrial Zone, Hatai West Road No. 18, North 2-302 Industry Incubator-6-23 天津华苑产业区海泰西路 18 号北 2-302 工业孵化-6-23 <sup>189</sup>	
<b>Other Contact Information</b>	<i>Phone</i>	010-62600854 <sup>190</sup>
	<i>Fax</i>	NA
	<i>Email</i>	tang@ict.ac.cn; <sup>191</sup> xiaoyu@sugon.com <sup>192</sup>
<b>Date of Incorporation</b>	February 2, 2015 <sup>193</sup>	
<b>Registered Capital</b>	An unofficial source puts registered capital at RMB 3.075 mln. <sup>194</sup>	

<sup>180</sup> <http://www.tianyancha.com/company/902580218>, accessed August 17, 2016.

<sup>181</sup> <http://www.tianyancha.com/reportContent/902580218/2015>, accessed August 17, 2016.

<sup>182</sup> <http://www.tianyancha.com/company/2352013801>; <http://www.tianyancha.com/company/2354071747>, accessed August 17, 2016.

<sup>183</sup> <http://tjcredit.gov.cn/>; <http://www.tianyancha.com/company/330537056>, accessed August 17, 2016.

<sup>184</sup> <http://tjcredit.gov.cn/>; <http://www.tianyancha.com/company/330537056>, accessed August 17, 2016.

<sup>185</sup> <http://www.tianyancha.com/company/2352013801>; <http://www.tianyancha.com/company/2354071747>, accessed August 17, 2016.

<sup>186</sup> AIC records accessed at <http://qyxy.baic.gov.cn/> on May 6, 2016. Direct link to record unavailable.

<sup>187</sup> <http://tjcredit.gov.cn/>, accessed August 17, 2016.

<sup>188</sup> <http://tjcredit.gov.cn/>, accessed August 17, 2016.

<sup>189</sup> <http://tjcredit.gov.cn/>, accessed August 17, 2016.

<sup>190</sup> <http://www.tianyancha.com/company/902580218>, accessed August 17, 2016.

<sup>191</sup> <http://www.tianyancha.com/company/902580218>, accessed August 17, 2016.

<sup>192</sup> <http://www.tianyancha.com/reportContent/902580218/2015>, accessed August 17, 2016.

<sup>193</sup> <http://tjcredit.gov.cn/>, accessed August 17, 2016.

<sup>194</sup> <http://www.11467.com/tianjin/co/236843.htm>, accessed August 17, 2016.

<b>Authorized Scope of Business</b>	Scientific research and technology services, information transmission, software, and information technology services. <sup>195</sup>
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## Political or Government Connections

### Military Connections

- No explicit connections between Tianjin Hai Fu Tian Ding Technology and the Chinese military were identified.
- 863 Program:
  - Tang Zhimin, the leading partner at Tianjin Hai Fu Tian Ding Technology, has a track record of participation in the Ministry of Science and Technology's 863 Program, a program which has been known to encourage collaboration with military researchers to develop dual-use technologies.

### Government Connections

- Chinese Academy of Sciences
  - Tianjin Hai Fu Tian Ding Technology's constituent partners are all established researchers at the state-run Chinese Academy of Sciences Institute of Computing.

## Customers of Concern

### Military

- NA.


### Defense Industry

- NA.

## Key Personnel

Based on searches of this entity's website, corporate data, and other online information, key personnel associated with Tianjin Hai Fu Tian Ding Technology Partnership (LP) include the following individuals:

### Partners<sup>196</sup>



	<p><b>Tang Zhimin (唐志敏)</b></p> <ul style="list-style-type: none"> <li>• Tang is a researcher at the Chinese Academy of Sciences Institute of Computing Technology.</li> <li>• Tang's research focuses on computer system architectures, digital signals processing, and super large scale integrated circuit design.<sup>197</sup></li> <li>• Tang graduated from Nanjing University with a degree in computer systems architecture in 1985. He worked at the Chinese Academy of Sciences Institute of Computing Technology from 1985 to 1990.<sup>198</sup></li> <li>• For more information on Tang, see page 29.</li> </ul>
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<sup>195</sup> <http://tjcredit.gov.cn/>, accessed August 17, 2016.

<sup>196</sup> This table is based on corporate executives and principals identified in this company's corporate records, website, and other online media.

<sup>197</sup> [http://sourcedb.ict.cas.cn/jssrck/201202/t20120217\\_3441943.html](http://sourcedb.ict.cas.cn/jssrck/201202/t20120217_3441943.html), accessed August 17, 2016.

<sup>198</sup> [http://sourcedb.ict.cas.cn/jssrck/201202/t20120217\\_3441943.html](http://sourcedb.ict.cas.cn/jssrck/201202/t20120217_3441943.html), accessed August 17, 2016.

	<p><b>Liu Xinchun (刘新春)</b></p> <ul style="list-style-type: none"> <li>• Liu is a researcher at the Chinese Academy of Sciences Institute of Computing Technology and a member of the University of Chinese Academy of Sciences faculty.<sup>199</sup></li> <li>• Liu participated in developing the Dawning 4000H bioinformatics-oriented supercomputer.<sup>200</sup></li> <li>• Liu's research focuses on high performance networks and reconfigurable computing.<sup>201</sup></li> </ul>
	<p><b>Yang Xiaojun (杨晓君)</b></p> <ul style="list-style-type: none"> <li>• Yang is a senior engineer at the Chinese Academy of Sciences Institute of Computing Technology, where he works at the High Performance Computing Center.<sup>202</sup></li> <li>• Yang's expertise lies in server system design, high-performance computing, and inter-chip and on-chip networking.<sup>203</sup></li> </ul>

<sup>199</sup> <http://peopleucas.ac.cn/~0004710>, accessed August 17, 2016.

<sup>200</sup> <http://www.ezkaoyan.com/school/ict/column2/2006-4-12/20064125826234.htm>, accessed August 17, 2016.

<sup>201</sup> [http://sourcedb.ict.cas.cn/cn/jssrck/200909/t20090917\\_2496679.html](http://sourcedb.ict.cas.cn/cn/jssrck/200909/t20090917_2496679.html), accessed August 17, 2016.

<sup>202</sup> <http://www.ict.cas.cn/yjsjy/dsjj/sdjsjxtjg/>, August 17, 2016.

<sup>203</sup> [http://sourcedb.ict.cas.cn/cn/jssrck/200909/t20090917\\_2496758.html](http://sourcedb.ict.cas.cn/cn/jssrck/200909/t20090917_2496758.html), accessed August 17, 2016.

## Profile VII: Sichuan Hongyun Next-Generation Information Technology Venture Capital Fund Partnership (LP) (四川虹云新一代信息技术创业投资基金合伙企业（有限合伙）/ “Hongyun LP”)

### Key Findings

- Partners in Hongyun LP include Changhong Electronics, a state-owned electronics manufacturer supplying both military and civilian end-users, and the company’s subsidiary Changhong IT.
- Several state-owned industry development and investment holding organizations are also partners in Hongyun LP, including Sichuan Province Technology Transfer Center, Chengdu Tianfu New Area Innovation Investment Fund Center, and State Development and Investment Corporation Technology Investment Co., Ltd.

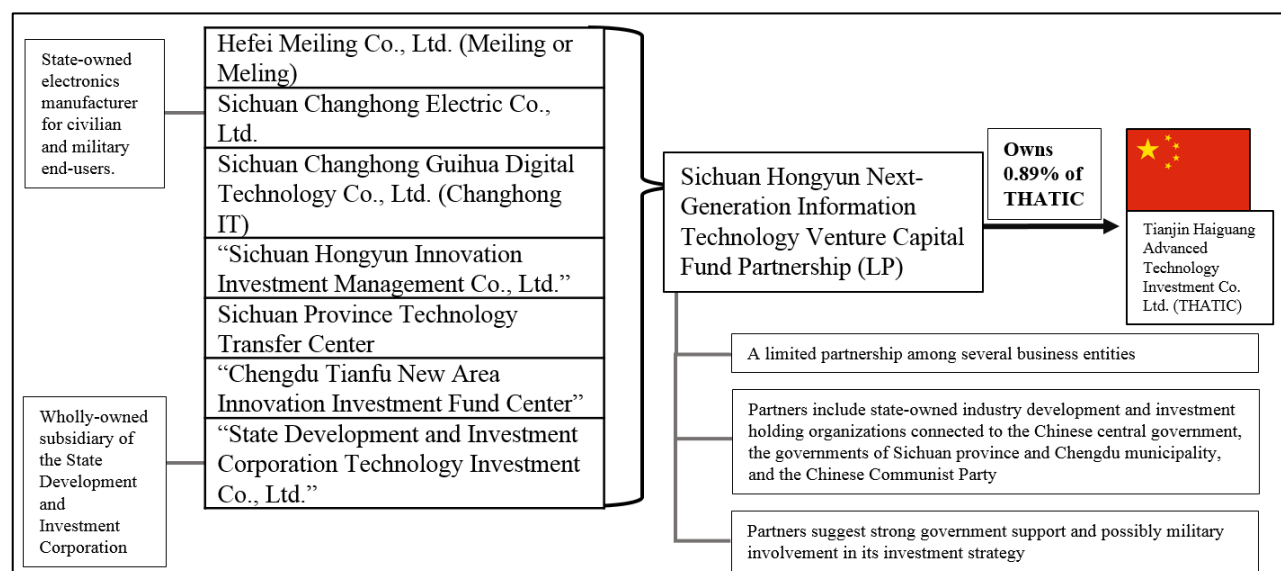


Figure 10: Summary of relevant ties and information for Sichuan Hongyun Next-Generation Information Technology Venture Capital Fund Partnership (LP).

### Company Profile

#### Overview

Sichuan Hongyun Next-Generation Information Technology Venture Capital Fund Partnership (LP) is set up as a limited partnership with several business entities as its partners, as summarized in the following table. The partners in Hongyun LP suggest strong government support and possibly military involvement in its investment strategy. The partnership appears to be set up to manage an investment fund called the Hongyun Fund, which has been organized to provide early and mid-stage investments for businesses in Sichuan Province.<sup>204</sup>

<sup>204</sup> <http://www.cdtjt.com/news/201603/2641.html>, accessed August 23, 2016.

Table 1: Sichuan Hongyun Next-Generation Information Technology Venture Capital Fund Partnership (LP) registered partners

Partner (English name)	Partner (official name)	Registration number	Website or notes
Hefei Meiling Co., Ltd. (Meiling or Meling)	合肥美菱股 份有限公司	3400004000012 78	<a href="http://www.meiling.com/">http://www.meiling.com/</a>
Sichuan Changhong Electric Co., Ltd.	四川长虹电 器股份有限 公司	5107000000254 52	<a href="http://www.changhong.com/">http://www.changhong.com/</a>
Sichuan Changhong Guihua Digital Technology Co., Ltd. (Changhong IT)	四川长虹佳 华数字技术 有限公司	5107030000093 41	<a href="http://www.changhongit.com/">http://www.changhongit.com/</a>
“Sichuan Hongyun Innovation Investment Management Co., Ltd.”	四川虹云创 业股权投资 管理有限公司	5107000001062 36	No website. Investors: Changhong Electric, Beijing Skyccloud Union-Win Investment Ltd. (北京天云联赢投资管理有 限公司). <sup>205</sup>
Sichuan Province Technology Transfer Center	四川省技术 转移中心	59751644-7	<a href="http://www.scsttc.com/">http://www.scsttc.com/</a>
“Chengdu Tianfu New Area Innovation Investment Fund Center”	成都天府创 新股权投资 基金中心 (有限合 伙)	5101100000270 64	Article: <a href="http://www.cdtjt.com/news/201603/2641.html">http://www.cdtjt.com/news/201603/2641.html</a>
“State Development and Investment Corporation Technology Investment Co., Ltd.”	国投高科技 投资有限公 司	1000000000238 43	Background: <a href="http://www.sdic.com.cn/cn/gtjt/jtjs/2007/08/1187250060953474.htm">http://www.sdic.com.cn/cn/gtjt/jtjs/2007/08/1187250060953474.h tm</a>

<sup>205</sup> [http://company.gongchang.com/p-510000/15216219\\_4bf7/](http://company.gongchang.com/p-510000/15216219_4bf7/), accessed August 18, 2016.

## Overview of Partners in Hongyun LP

The partners participating in Hongyun LP suggest that the Chinese government and possibly the Chinese military may be involved in the project.

### Changhong Electronics

Changhong Electronics is a major Chinese electronics manufacturer that produces many consumer electronics products including televisions, air conditioners, digital receivers, and home appliances. It also manufactures military radar, electrical connectors, power supplies, and information technology products for military customers. Changhong is based in Mianyang, Sichuan Province, a city with significant ties to the Chinese military-industrial complex and nuclear weapons programs.<sup>206</sup> Changhong is a state-owned enterprise and is also listed on the Shanghai Stock Exchange under ticker number 600839.

### Meiling

Hefei Meiling is a leading Chinese appliance manufacturer. Established in 1983, it was one of China's earliest refrigerator manufacturers and now produces approximately 2 mln refrigerators annually.<sup>207</sup> Meiling is listed on the Shanghai Stock Exchange under ticker number 000521.<sup>208</sup>

### Changhong Guihua Digital Technology & Changhong IT

Changhong Guihua Digital Technology is a computer software and Internet services company established in August 2008 in Mianyang, Sichuan province with RMB 50 mln registered capital. Its legal representative is Zhao Yong (赵勇), the chairman and Chinese Communist Party Secretary at Changhong Electronics.<sup>209</sup> Its sole shareholder is Sichuan Changhong Guihua Information Products Co., Ltd. (四川长虹佳华信息产品有限责任公司, 51070800000413) (Changhong IT).<sup>210</sup> Changhong IT is a subsidiary of Changhong Electronics that specializes in information technology solutions and products.<sup>211</sup>

### Sichuan Hongyun Innovation Investment Management

Hongyun Innovation Investment Management appears to be an investment vehicle established by Changhong Electronics in partnership with Beijing Skycloud Union-Win Investment Ltd.<sup>212</sup> Skycloud Union-Win Investment in turn appears to be an investment vehicle set up in August

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<sup>206</sup> <http://www.bloomberg.com/Research/stocks/private/snapshot.asp?privcapid=5477884>;  
<http://www.ccme.org.cn/shop/ccme2342/index.aspx>;  
<http://en.xinfiance.com/html/Industries/Technology/2015/47255.shtml>; <https://www.gmdn.net/corp-837312.html>, accessed August 18, 2016.

<sup>207</sup> [https://www.emis.com/php/company-profile/CN/Hefei\\_Meiling\\_Co\\_Ltd\\_\\_%E5%90%88%E8%82%A5%E7%BE%8E%E8%8F%B1%E8%82%A1%E4%BB%BD%E6%9C%89%E9%99%90%E5%85%AC%E5%8F%B8\\_\\_en\\_1739156.html](https://www.emis.com/php/company-profile/CN/Hefei_Meiling_Co_Ltd__%E5%90%88%E8%82%A5%E7%BE%8E%E8%8F%B1%E8%82%A1%E4%BB%BD%E6%9C%89%E9%99%90%E5%85%AC%E5%8F%B8__en_1739156.html);  
<http://baike.baidu.com/view/547060.htm?fromtitle=%E5%90%88%E8%82%A5%E7%BE%8E%E8%8F%B1%E9%9B%86%E5%9B%A2&fromid=154775&type=syn>, accessed August 23, 2016.

<sup>208</sup> <http://www.google.com.hk/finance?cid=8574514>, accessed August 23, 2016.

<sup>209</sup> <https://zh.wikipedia.org/wiki/%E9%95%BF%E8%99%B9%E7%94%B5%E5%99%A8>, accessed August 23, 2016.

<sup>210</sup> <http://gsxt.scaic.gov.cn/>, accessed August 23, 2016.

<sup>211</sup> <http://www.changhongit.com/projectcase/solutions.jsp>, accessed August 23, 2016.

<sup>212</sup> [http://company.gongchang.com/p-510000/15216219\\_4bf7/](http://company.gongchang.com/p-510000/15216219_4bf7/), accessed August 18, 2016.



2010 as a subsidiary of CBC Capital, an investment fund established in 2006 to focus on China's telecommunication, media, and technology sectors.<sup>213</sup>

#### Sichuan Province Technology Transfer Center

The Sichuan Province Technology Transfer Center was established by the Sichuan provincial government and Sichuan branch of the Chinese Communist Party in early 2012 in order to promote the application of scientific research achievements. It operates as a civilian public interest organization.<sup>214</sup> The Technology Transfer Center has a public website but its content currently includes only a static screenshot of its prior main page: <http://www.scsttc.com/>.

#### Chengdu Tianfu New Area Innovation Investment Fund Center

The Chengdu Tianfu New Area Innovation Investment Fund Center is managed by Chengdu Tianfu New Area Investment Group (天创投公司).<sup>215</sup> The Chengdu Tianfu New Area Investment Group was set up in August 2013 as a state-owned enterprise approved by the Chengdu Party Committee and Chengdu Municipal Government.<sup>216</sup> The group focuses on investments to develop the Chengdu Tianfu New Area.<sup>217</sup>

#### State Development and Investment Corporation Technology Investment Co., Ltd.

State Development and Investment Corporation Technology Investment Co., Ltd. is a wholly-owned subsidiary of the Chinese State Development and Investment Corporation (SDIC), a state-owned investment holding company approved by the State Council in 1995. SDIC has approximately USD 3 bln registered capital and USD 75.4 bln in total assets, and employs more than 74,000 people. It operates several subsidiaries that concentrate on investments in different industries, including the Technology Investment Co., Ltd., which focuses on the high and new technology sector.<sup>218</sup>

#### Other investments

In addition to its investment in THATIC, Sichuan Hongyun Next-Generation Information Technology Venture Capital Fund Partnership has invested in Chengdu Zhihui Anxin Technology Co., Ltd. (成都智汇安新科技有限公司), a computer software, hardware, and services company that has developed a secure campus electronic payments platform in partnership with China UnionPay.<sup>219</sup>

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<sup>213</sup> <http://www.cbc-capital.com/page/aboutcbc/index.php>;  
[http://f9data.gw.com.cn/f9/mvc\\_app/www/index.php?m=Pe-Event&c=Gp&f=Index&obj=80336707](http://f9data.gw.com.cn/f9/mvc_app/www/index.php?m=Pe-Event&c=Gp&f=Index&obj=80336707), accessed August 23, 2016.

<sup>214</sup> <http://www.scst.gov.cn/zhuzhan/xwdt/20120315/9743.html>, accessed August 23, 2016.

<sup>215</sup> <http://www.cdtjt.com/news/201603/2641.html>, accessed August 23, 2016.

<sup>216</sup> <http://www.cdtjt.com/about.html>, accessed August 23, 2016.

<sup>217</sup> <http://www.cdtjt.com/about.html>, accessed August 23, 2016.

<sup>218</sup> [http://www.sdic.com.cn/en/about/A0201index\\_1.htm](http://www.sdic.com.cn/en/about/A0201index_1.htm);

[http://www.sdic.com.cn/en/about/structure/A020104index\\_1.htm](http://www.sdic.com.cn/en/about/structure/A020104index_1.htm), accessed August 23, 2016.

<sup>219</sup> <http://www.tianyancha.com/company/2310286867>, accessed August 18, 2016.



Corporate Registration Information for Sichuan Hongyun Next-Generation Information Technology Venture Capital Fund Partnership.<sup>220</sup>

<b>Corporate Registration Number</b>	91510100MA61R6BL4M	
<b>Type of Company</b>	Limited partnership 有限合伙企业	
<b>Registered Address</b>	Sichuan Province, Chengdu, Tianfu New District, Zhengxing Road, Guangtangcun Tianfu Financial Valley No. 18 四川省成都市天府新区正兴街道官塘村天府金融谷 18 号公馆	
<b>Other Contact Information</b> <sup>221</sup>	<i>Phone</i>	18683959454
	<i>Address</i>	Sichuan Province, Chengdu Technology Zone, Tianfu Fourth Road No. 199, Office 2611 四川省成都市高新区天府四街 199 号 2611 室 <sup>222</sup>
	<i>Email</i>	NA.
<b>Date of Incorporation</b>	October 19, 2015	
<b>Registered Capital</b>	RMB 25 mln <sup>223</sup>	
<b>Authorized Scope of Business</b>	Startup investments, startup investments on behalf of others, investment consulting, management services for startups.	

## Political or Government Connections

### Military Connections

- Changhong Electronics, a partner in Hongyun LP, is a major supplier of electronics and information technology to the Chinese military. Changhong was established in the 1950s to develop military radar and has since expanded into consumer electronics markets, while maintaining its business in the defense industries. Changhong Electronics' participation in the Hongyun LP is amplified by the participation of its subsidiary Changhong IT as an additional investment partner.

### Government Connections

- Several Hongyun LP partners are state-owned enterprises or state-owned non-profits, including Sichuan Province Technology Transfer Center, Chengdu Tianfu New Area Innovation Investment Fund Center, and State Development and Investment Corporation Technology Investment Co., Ltd. These enterprises are connected to the Chinese central government, the governments of Sichuan Province and Chengdu Municipality, and the Chinese Communist Party.

<sup>220</sup> SAIC records accessed at <http://gsxt.scaic.gov.cn/>.

<sup>221</sup> Searches were conducted for additional company contact information in Chinese job postings, résumés, B2b websites, and other online sources to supplement corporate information on file.

<sup>222</sup> <http://gsxt.scaic.gov.cn/ztxy.do>, accessed August 18, 2016.

<sup>223</sup> <http://finance.sina.com.cn/stock/t/20150812/005922938403.shtml>, accessed August 18, 2016.

## Customers of Concern

### Military

- NA.

### Defense Industry

- NA.

## Profile VIII: Beijing Zhong Yun Rong Hui Investment Center (LP) (北京中云融汇投资中心（有限合伙）)

### Key Findings

- Beijing Zhong Yun Rong Hui Investment Center is an investment vehicle set up in 2012 with several business entities as limited partners.
- China Broadband Capital Partners, LP, a Chinese investment firm established in 2006, appears to be behind several of the business entities investing in Zhong Yun Rong Hui Investment Center.
  - Edward Tian, founder and chairman of China Broadband Capital Partners, was previously the vice chairman and CEO of state-owned China Netcom Group from 2002 to 2006. He was CEO of China Netcom Company from August 1999 to May 2002. Before joining China Netcom Tian was the co-founder and CEO of AsiaInfo Holding, one of China's earliest Internet technology providers.<sup>224</sup>
- Two of the partnership's partners, Beijing Zhongguancun Innovation Investment Development Center and E-Town Capital, are state-owned investment and asset management entities that promote local development in the Beijing area.

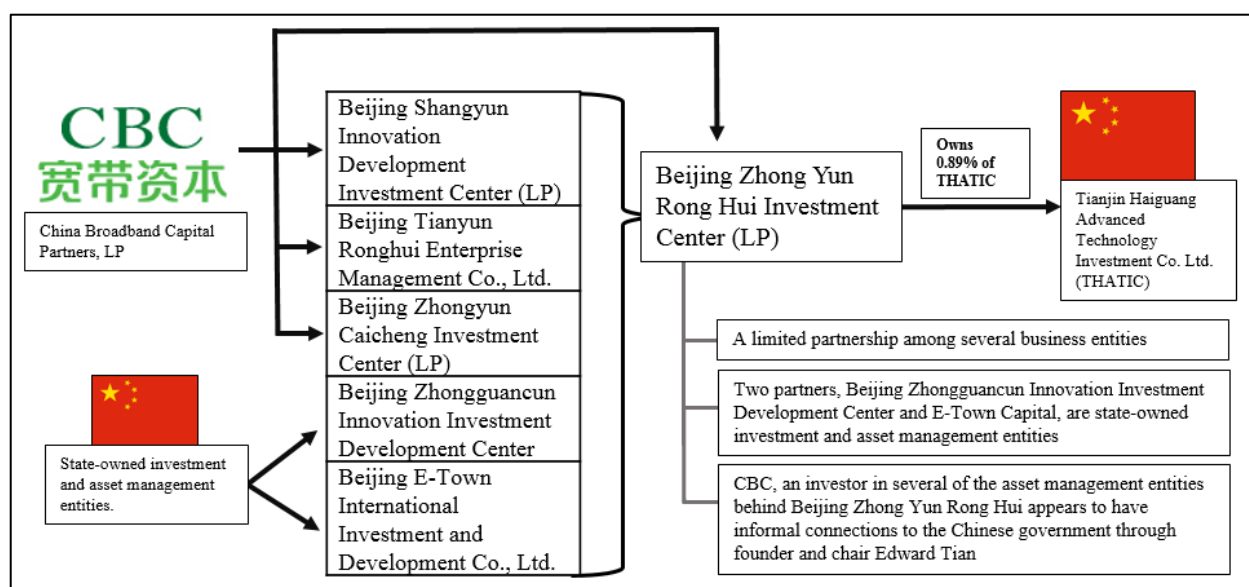


Figure 11: Summary of ties and relevant information for Beijing Zhong Yun Rong Hui Investment Center (LP).

### Company Profile

#### Overview

Beijing Zhong Yun Rong Hui Investment Center (LP) is an investment vehicle set up by several business entities in 2012. The center's current partners are summarized in the following table.

Name (English translation)	Name (Chinese)	Registration number	Website or notes
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<sup>224</sup> <http://www.cbc-capital.com/cp/class/>, accessed August 24, 2016.

Beijing Zhongguancun Innovation Investment Development Center	北京中关村创业投资发展中心	110114004251503	<a href="http://www.zgcvc.com/">http://www.zgcvc.com/</a>
Beijing Shangyun Innovation Development Investment Center (LP)	北京上云创展投资中心（有限合伙）	110302014839407	None.
Beijing E-Town International Investment and Development Co., Ltd.	北京亦庄国际投资发展有限公司	110302011626480	<a href="http://www.etowncapital.com/">http://www.etowncapital.com/</a>
Beijing Zhongyun Caicheng Investment Center (LP)	北京中云财成投资中心（有限合伙）	91110302355287274T	None.
Beijing Tianyun Ronghui Enterprise Management Co., Ltd.	北京天云融汇企业管理有限公司	110302013140502	None.

#### Beijing Zhongguancun Innovation Investment Development Center

Beijing Zhongguancun Innovation Investment Development Center is an investment platform set up by the Zhongguancun Management Committee and the Zhongguancun Development Group in October 1998.<sup>225</sup> It has registered assets totaling RMB 440 mln and has RMB 1 bln total assets under management. The fund mainly invests in projects in the Beijing Zhongguancun area and has invested approximately RMB 130 mln in more than ten Zhongguancun District businesses. It has also partnered with leading Chinese technology investment firms to set up at least 27 investment funds with total endowments reaching more than RMB 10 bln.<sup>226</sup>

The board of the Beijing Zhongguancun Innovation Investment Development Center includes the following individuals:<sup>227</sup>

Name (English translation)	Name	Position
Zhuang Hai	庄海	Chairman
Wang Xiaobin	王晓彬	Director
Zhang Shuqing	张书清	Director

<sup>225</sup> <http://www.zgcvc.com/about.asp?classid=3>, accessed August 24, 2016.

<sup>226</sup> <http://www.zgcvc.com/>, accessed August 24, 2016.

<sup>227</sup> <http://qyxy.baic.gov.cn/>, accessed August 24, 2016.

Zhuang Hai	庄海	President
Wang Dong	王东	Supervisor

#### Beijing Shangyun Innovation Development Investment Center (LP)

Beijing Shangyun Innovation Development Investment Center is an investment and asset management vehicle established in 2012. Investors include Beijing Skyccloud Union-Win Investment Ltd. (北京天云联赢投资管理有限公司), Tianyun Pan Shiyi (潘石屹), TCL Group, Beijing-based software and cloud services provider Yonyou (北京用友科技有限公司), Tian Suning (田溯宁), and the Lao Niu Foundation. Qin Jie (秦捷) is listed as the representative for Beijing Skyccloud Union-Win Investment, which is the fund's managing partner. The Center has RMB 500 mln registered capital.<sup>228</sup>

#### Beijing E-Town International Investment and Development Co., Ltd. (E-Town Capital)

E-Town Capital is a state-owned investment and financing company established in February 2009. Its purpose is to encourage industrial upgrades and technological innovation in Beijing E-Town, a development area set up in 1992 and approved by the State Council in 1994. Beijing E-Town hosts nearly 4,000 businesses from more than 30 countries around the world.<sup>229</sup> E-Town Capital has invested in more than 100 projects with a total investment of RMB 23.5 bln (USD 3.53 bln). It is part of a network of more than 50 related funds that together manage more than RMB 280 bln.<sup>230</sup>

#### Beijing Zhongyun Caicheng Investment Center (LP)

Beijing Zhongyun Caicheng Investment Center (LP) is an investment and asset management vehicle set up in 2015. Its two investors include Beijing Tiandi Rongchuang Innovation Investment Co., Ltd. (北京天地融创创业投资有限公司), and Beijing Tianyun Ronghui Enterprise Management Co., Ltd. (北京天云融汇企业管理有限公司). Beijing Tianyun Ronghui Enterprise Management Co., Ltd. is also a direct investor in Beijing Zhong Yun Rong Hui Investment Center (LP). The contact e-mail from Beijing Zhongyun Caicheng Investment Center is taoxp@cbcos.com.<sup>231</sup>

#### Beijing Tianyun Ronghui Enterprise Management Co., Ltd.

Beijing Tianyun Ronghui Enterprise Management Co., Ltd. was established in August 2010 and engages in enterprise management, investment management, and economic information consulting. It is also authorized to organize cultural events and engages in advertising, market research, and technology and product import and export.<sup>232</sup> The company's sole listed investor is Tianji Innovation Investment Management Co., Ltd. (天际创业投资管理有限公司), which was registered in Shanghai until August 2016 and recently updated its name to reflect new registration in Beijing. Its executive director and president is Qin Jie, who is also listed as the

<sup>228</sup> <http://qyxy.baic.gov.cn/>, accessed August 24, 2016.

<sup>229</sup> <http://www.bdainvest.org/overview.html>, accessed August 24, 2016.

<sup>230</sup> [http://www.en.ETOWNcapital.com/2016-05/16/c\\_52004.htm](http://www.en.ETOWNcapital.com/2016-05/16/c_52004.htm), accessed August 24, 2016.

<sup>231</sup> <http://www.tianyancha.com/company/2349764376>, accessed August 24, 2016.

<sup>232</sup> <http://testabc.so315.cn/orgreport?id=eVBsSmtZL2VQMUNJdTRnYStNTHp1QT09>, accessed August 24, 2016.

business representative of Beijing Skycloud Union-Win Investment.<sup>233</sup> Li Shuwen (李舒文) is listed as a director.<sup>234</sup>

## Connections to China Broadband Capital Partners, LP

The business registration e-mail address used for Beijing Zhong Yun Rong Hui Investment Center (LP) is taoxp@cbc-capital.com. The same email address was used for the business registration of one of the partnership's partners, Beijing Tianyun Ronghui Enterprise Management Co., Ltd. A related email address, taoxp@cbcos.com, was used to register two addition partners: Beijing Shangyun Innovation Development Investment Center (LP) and Beijing Zhongyun Caicheng Investment Center (LP). These email addresses appear to be connected to China Broadband Capital Partners, LP, an investment firm that is also the parent of Beijing Skycloud Union-Win Investment, an investor in both Beijing Zhong Yun Rong Hui Investment Center and Hongyun LP.

## Investment targets

In addition to THATIC, Beijing Zhong Yun Rong Hui Investment Center (LP) has invested in several other Internet industry businesses in Beijing. These are summarized in the following table.<sup>235</sup>

Name (English translation)	Name (Chinese)	Website or notes
Sinocloud Wisdom	中云智慧（北京）科技有限公司	<a href="http://www.yunkouan.com/">http://www.yunkouan.com/</a>
91Jinrong	九一金融信息服务（北京）有限公司	<a href="http://www.91jinrong.com/">http://www.91jinrong.com/</a>
Xianzhi Chuangke Technology	先智创科（北京）科技有限公司	Also related to 91Jinrong
Rtmap	北京智慧图科技有限责任公司	<a href="http://www.rtmap.com/">http://www.rtmap.com/</a>
A Cloud Technology	一朵云（北京）科技有限公司	365Fanyi.com; <sup>236</sup> Zuodao.com <sup>237</sup>
Strong Union	北京思创银联科技股份有限公司 <sup>238</sup>	<a href="http://www.strongunion.com.cn/">http://www.strongunion.com.cn/</a>

<sup>233</sup> <http://testabc.so315.cn/orgreport?id=eVBsSmtZL2VQMUNJdTRnYStNTHp1QT09>, accessed August 24, 2016.

<sup>234</sup> <http://testabc.so315.cn/orgreport?id=eVBsSmtZL2VOMUNJdTRnYStNTHp1OT09>, accessed August 24, 2016.

<sup>235</sup> <http://www.tianyancha.com/company/26871592>, accessed August 24, 2016.

<sup>236</sup> <http://company.zhaopin.com/CC370643826.htm>, accessed August 25, 2016.

237

<https://www.linkedin.com/company/%E4%B8%80%E6%9C%B5%E4%BA%91%E5%BC%88%E5%8C%97%E4%BA%AC%E5%BC%89%E7%A7%91%E6%8A%80%E6%9C%89%E9%99%90%E5%85%AC%E5%8F%B8>, accessed August 25, 2016.

<sup>238</sup> <http://qyxy.baic.gov.cn/>, accessed August 24, 2016.

Corporate Registration Information for Beijing Zhong Yun Rong Hui Investment Center (LP).<sup>239</sup>

<b>Corporate Registration Number</b>	911101080592506295	
<b>Type of Company</b>	Limited partnership 有限合伙企业	
<b>Registered Address</b>	Beijing, Haidian District, Dongbei Wangxi Road No. 8, Building 4, Software Square Section C, No. 2-06 北京市海淀区东北旺西路 8 号 4 号楼软件广场 C 座 2-06 室	
<b>Other Contact Information</b> <sup>240</sup>	<i>Phone</i>	010-85635888
	<i>Communications Address</i>	Beijing, Chaoyang District, Ritan North Road, Ritan Park, Neijufudian (北京市朝阳区日坛北路日坛公园内具服殿)
	<i>Email</i>	taoxp@cbc-capital.com
<b>Date of Incorporation</b>	December 17, 2012	
<b>Registered Capital</b>	RMB 200 mln	
<b>Authorized Scope of Business</b>	Investment management, asset management, business management, market research, trade consulting, business planning, meeting services, hosting exhibitions, etc.	

## Political or Government Connections

### Military Connections

- NA.

### Government Connections

- Beijing Zhongguancun Innovation Investment Development Center and E-Town Capital are state-owned investment and asset management entities that promote local development in the Beijing area.
- China Broadband Capital Partners, an investor in several of the asset management entities that are limited partners in Beijing Zhong Yun Rong Hui Investment Center, appears to have informal connections to the Chinese government. Edward Tian, founder and chairman of China Broadband Capital Partners, was previously the vice chairman and CEO of state-owned China Netcom Group from 2002 to 2006.

## Customers of Concern

### Military

- NA.

### Defense Industry

- NA.

<sup>239</sup> SAIC records accessed at <http://qyxy.baic.gov.cn/>, accessed August 24, 2016.

<sup>240</sup> Searches were conducted for additional company contact information in Chinese job postings, résumés, B2B websites, and other online sources to supplement corporate information on file.

## Profile IX: Tianjin Cheng Bai Equity Investment Partnership (LP) (天津诚柏股权投资合伙企业（有限合伙）)

### Key Findings

- Tianjin Cheng Bai Equity Investment Partnership (hereafter “Tianjin Cheng Bai”) is an investment partnership established in 2008 with both public and private investment.
- Tianjin Cheng Bai appears to be managed by Tian Su Ning (田溯宁), and his name is attached to two of the seven partner investing organizations. Tian is a prominent Chinese tech executive with leadership positions in multiple technology companies and established connections to the Chinese government.
- Chinese government-affiliated organizations are among Tianjin Cheng Bai’s investing partners, with the National Council for Social Security Fund (全国社会保障基金理事会) as the largest individual investor. The Chinese Academy of Sciences Holdings Co, Ltd. (中国科学院国有资产经营有限责任公司) is also an investor.<sup>241</sup>

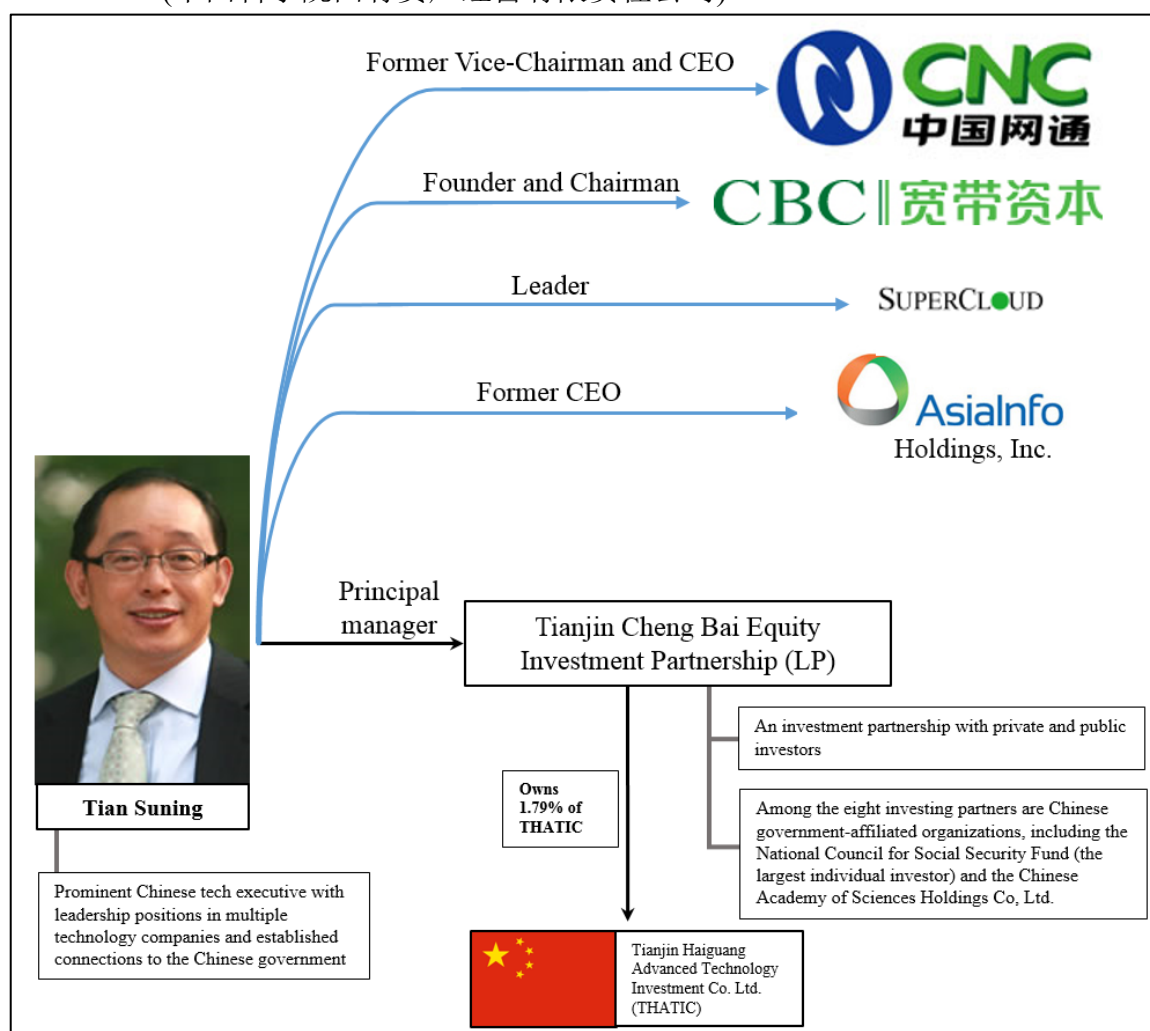


Figure 12: Summary of ties and relevant information for Tianjin Cheng Bai Equity Investment Partnership (LP).

<sup>241</sup> [http://www.tcl.com/attached/file/20150205/20150205161512\\_82986.pdf](http://www.tcl.com/attached/file/20150205/20150205161512_82986.pdf), accessed August 31, 2016.



## Company Profile

### Overview

Tianjin Cheng Bai is a telecommunications investment vehicle established in 2008 with the goal of “building China’s broadband ecosystem.” Tianjin Cheng Bai’s stated aim is to work with government organizations and foreign and domestic telecommunications companies, service providers, Internet firms, and investors to jointly promote the development of China’s telecommunications, Internet, media, and high technology industries. An unsigned partnership agreement available online describes the fund as jointly managed and supported by eight investing organizations. The National Council of Social Security Fund is chief among these with a 500 million RMB investment.<sup>242</sup>

Tian Su Ning is listed as the implementing partner in Tianjin Cheng Bai’s corporate registration information (see below) and is referred to as Tianjin Cheng Bai’s “principal manager” in a 2014 news release.<sup>243</sup> His name is attached to two apparently affiliated organizations comprising two of the eight investing partners: Tianjin Cheng Bai Investment Management Ltd. (诚柏（天津）投资管理有限公司), the lead implementing partner organization, and Tianjin Cheng Bai Cai Cheng Equity Investment Partnership (LP) (天津诚柏财成股权投资合伙企业（有限合伙）).

Name (English translation)	Name (Chinese)	Registration number / Unified Social Credit Number
National Council for Social Security Fund	全国社会保障基金理事会	n/a
Beijing Chengbai Hengyuan Investment Center	北京诚柏恒远投资中心（有限合伙）	91110302589136532N
Tianjin Cheng Bai Cai Cheng Equity Investment Partnership (LP)	天津诚柏财成股权投资合伙企业（有限合伙）	120191000090097
Chinese Academy of Sciences Holdings Co, Ltd.	中国科学院国有资产经营有限责任公司	110000003761238
Beijing Chengbai Heng Ying Investment Center	北京诚柏恒赢投资中心（有限合伙）	91110302585816565W
Taikang Life Insurance Co., Ltd.	泰康人寿保险股份有限公司	n/a

<sup>242</sup> [http://www.tcl.com/attached/file/20150205/20150205161512\\_82986.pdf](http://www.tcl.com/attached/file/20150205/20150205161512_82986.pdf), accessed August 31, 2016.

<sup>243</sup> [http://finance.ifeng.com/a/20140301/11779033\\_0.shtml](http://finance.ifeng.com/a/20140301/11779033_0.shtml), accessed August 31, 2016.

Tianjin Cheng Bai Investment Management Ltd.	诚柏(天津)投资管理有限公司	n/a
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#### Corporate Registration Information for Tianjin Cheng Bai Equity Investment Partnership (LP).<sup>244</sup>

<b>Corporate Registration Number</b>	120191000024580	
<b>Implementing Partner</b> 执行事务合伙人	诚柏（天津）投资管理有限公司（委派代表：田溯宁）	
<b>统一社会信用代码</b>	911201166737243456	
<b>Type of Company</b>	English: Limited Partnership Enterprise 中文：有限合伙企业	
<b>Registered Address</b>	Tianjin Development Zone, Xincheng West Road No. 52, Binhai Financial Street Building No. 6, Floor 3, Suite F305 天津开发区新城西路 52 号滨海金融街 6 号楼三层 F305 室	
<b>Other Contact Information</b> <sup>245</sup>	<i>Phone</i>	85635888
	<i>Fax</i>	
	<i>Email</i>	guying@cbc-capital.com
<b>Date of Incorporation</b>	21 April 2008	
<b>Registered Capital</b>	RMB 2.94 million <sup>246</sup>	
<b>Authorized Scope of Business</b>	Investments in unlisted companies, investments in private stock in listed companies, and the provision of related consulting services.	

### Political or Government Connections

#### Military Connections

- Tian Su Ning, the principal figure associated with Tianjin Cheng Bai, leads China Broadband Capital (中国宽带资本基金), a technology investment firm, and Beijing Supercloud (北京天地超云科技有限公司), a Beijing government-supported telecommunications equipment developer.<sup>247</sup> Beijing Supercloud describes itself as working closely with the Chinese Academy of Sciences to undertake cooperative research, including in support of the 863 Program, a national research program with significant input from the People's Liberation Army.<sup>248</sup> A news release on the company's

<sup>244</sup> AIC records accessed at <http://tjcredit.gov.cn/> on August 31, 2016. Direct link to record unavailable.

<sup>245</sup> Searches were conducted for additional company contact information in Chinese job postings, résumés, B2B websites, and other online sources to supplement corporate information on file.

<sup>246</sup> <http://www.gzonline.gov.cn/cr/Files/44010110101200911250001320150825151015.pdf>, accessed August 31, 2016.

<sup>247</sup> [http://baike.baidu.com/link?url=NfRjWfuv12Q-NfTgyE6YZZHeuEVu1eHEpyCQWFoiSwXEQNiqMFb\\_PftVzMKlvaneBlfmg3\\_BXqXhIA-XHJIFfK](http://baike.baidu.com/link?url=NfRjWfuv12Q-NfTgyE6YZZHeuEVu1eHEpyCQWFoiSwXEQNiqMFb_PftVzMKlvaneBlfmg3_BXqXhIA-XHJIFfK), accessed August 31, 2016.

<sup>248</sup> <http://www.chinasupercloud.com/introduction.html>, accessed August 31, 2016.

website also touts its contribution to the development of China's national security and indigenous innovation through the development of China's first server using Shanghai Zhaoxin Semiconductor's (上海兆芯处理器) 8-core x86 infrastructure-based processor.<sup>249</sup>

#### Government Connections

- Tian Su Ning participated in the Xi Jinping-attended US-China Internet Industry Forum in Seattle in September 2015.<sup>250</sup> He has also served as vice president of the China Youth Entrepreneur Federation, which is affiliated with the Communist Youth League.<sup>251</sup>

#### Customers of Concern

##### Military

- NA.

##### Defense Industry

- NA.

#### Key Personnel

Based on searches of this entity's corporate data, and other online information, key personnel associated with Tianjin Cheng Bai Equity Investment Partnership (LP) include the following individual:

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<sup>249</sup> <http://www.chinasupercloud.com/newsdetails.html?id=337>, accessed August 31, 2016.

<sup>250</sup> <http://www.cbc-capital.com/cn/news/class/>, accessed August 31, 2016.

<sup>251</sup> [http://baike.baidu.com/link?url=7FR9i-1AVKsQYD8fNbgrQGM64rRZE4O3pQ3Ksn0YH6-gOaSG\\_RwzL4JVeJWdBwPgHMx9i2GwkiJzZ2B7FY2BA\\_](http://baike.baidu.com/link?url=7FR9i-1AVKsQYD8fNbgrQGM64rRZE4O3pQ3Ksn0YH6-gOaSG_RwzL4JVeJWdBwPgHMx9i2GwkiJzZ2B7FY2BA_), accessed August 31, 2016.



### **Tian Su Ning (田溯宁)**

- Tian appears to be the principal manager of Tianjin Cheng Bai. He is the founder and chairman of China Broadband Capital, and has also led Beijing Supercloud since its founding in 2010.<sup>252</sup>
- He has previously held a variety of leadership positions in Chinese technology firms, including as Vice Chairman and CEO of China Netcom Group and CEO of AsiaInfo Holdings., Inc.<sup>253</sup>
- Tian was born in 1963 and possesses a Master's Degree in Natural Resources Management from The Chinese Academy of Science and a PhD in Natural Resources Management from Texas Tech University.<sup>254</sup>

<sup>252</sup> [http://baike.baidu.com/link?url=NfRjWfuv12Q-NfTgyE6YZZHeuEVu1eHEpyCQWFoiSwXEQNiqMFb\\_PftVzMKlvaneBlfmg3\\_BXqXhIA-XHJIFfK](http://baike.baidu.com/link?url=NfRjWfuv12Q-NfTgyE6YZZHeuEVu1eHEpyCQWFoiSwXEQNiqMFb_PftVzMKlvaneBlfmg3_BXqXhIA-XHJIFfK), accessed August 31, 2016.

<sup>253</sup> <http://www.cbc-capital.com/cn/cp/class/>, accessed August 31, 2016.

<sup>254</sup> [http://baike.baidu.com/link?url=NfRjWfuv12Q-NfTgyE6YZZHeuEVu1eHEpyCQWFoiSwXEQNiqMFb\\_PftVzMKlvaneBlfmg3\\_BXqXhIA-XHJIFfK](http://baike.baidu.com/link?url=NfRjWfuv12Q-NfTgyE6YZZHeuEVu1eHEpyCQWFoiSwXEQNiqMFb_PftVzMKlvaneBlfmg3_BXqXhIA-XHJIFfK), accessed August 31, 2016.

## Profile X: The Chinese Academy of Sciences Holdings Co, Ltd. (中国科学院国有资产经营有限责任公司)

### Key Findings

- Chinese Academy of Sciences Holdings (CASH) is a wholly state-owned asset management company set up under the Chinese Academy of Sciences in 2002 to manage its state-owned assets and investments.
- CASH controls RMB 5.1 bln in invested capital and has invested in industries including IT, high-end manufacturing, environmental protection and new materials, and modern services, as well as investment firms and vehicles.
- As a large, state-owned institution, CASH has a local Chinese Communist Party Committee staffed by members of its senior management.
- The Chinese Academy of Sciences is central to the Chinese national science and technology system and collaborates extensively with the People's Liberation Army and its military research institutes on projects in many technology domains.

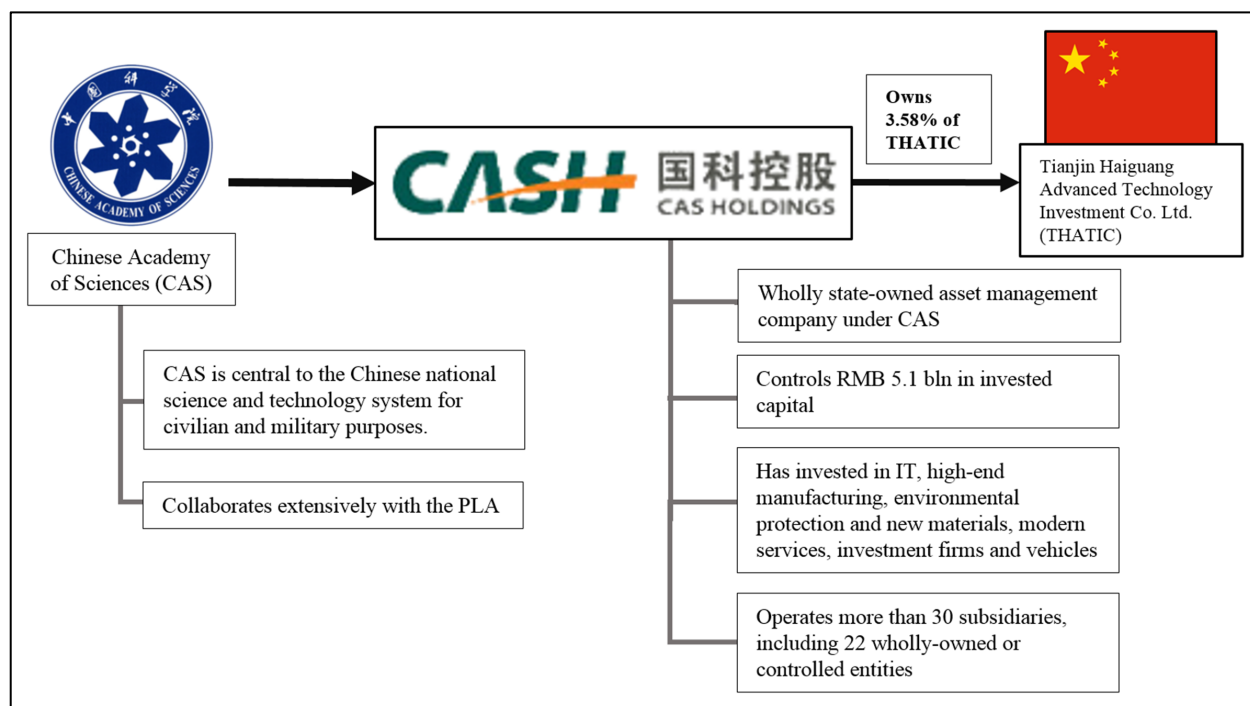


Figure 13: Summary of relevant ties and information for Chinese Academy of Sciences Holdings (CASH).

## Company Profile

### Overview

Chinese Academy of Sciences Holdings (CASH) is a wholly state-owned asset management company set up with the approval of the State Council in April 2002. It operates under the direction of the Chinese Academy of Sciences to invest in and supervise directly administered enterprises, and to oversee the assets of other enterprises invested in by CAS-affiliated institutions.<sup>255</sup> CASH also operates the CAS-Legend Institute, a training center set up by CAS and its investment firm Legend Holdings in 2007 to cultivate science and technology industry entrepreneurs and managerial talent.<sup>256</sup>

CASH participates in venture capital and private capital investments as an institutional investors and makes direct investments in strategic emerging industries. As of the end of 2015, CASH had RMB 5.1 bln total registered capital and operated more than 30 subsidiaries, including 22 wholly-owned or controlled entities.<sup>257</sup> Its investments span industries including IT, high-end manufacturing, environmental protection and new materials, and modern services, as well as investment firms and vehicles.<sup>258</sup>

As a large state-owned institution, CASH has a local Chinese Communist Party Committee staffed by members of its senior management.<sup>259</sup>

The CASH website provides a list of the company's investment targets, including 22 wholly-owned or controlled enterprises and 12 additional invested enterprises. These investment recipients are summarized in the following two tables.

*Table 2: Enterprises wholly owned or controlled by CASH*

Entity name (English)	Entity name (Chinese)	Website or notes
Legend Holdings	联想控股股份有限公司	<a href="http://www.legendholdings.com.cn/">http://www.legendholdings.com.cn/</a> ; Listed on Hong Kong Stock Exchange: 03396.HK
China Sciences Group	中科实业集团（控股）有限公司	<a href="http://www.csh.com.cn/">http://www.csh.com.cn/</a>
Oriental Scientific Instrument Import and Export Group	东方科学仪器进出口集团有限公司	<a href="http://www.osic.com.cn/">http://www.osic.com.cn/</a>
China Science Publishing and Media Group	中国科技出版传媒集团有限公司	<a href="http://www.cspg.cn/">http://www.cspg.cn/</a>
CAS Investment Management Co., Ltd.	中国科技产业投资管理有限公司	<a href="http://www.casim.cn/">http://www.casim.cn/</a>

<sup>255</sup> <http://english.holdings.cas.cn/English/AC/CP/>, August 26, 2016.

<sup>256</sup> <http://www.legendholdings.com.cn/en/NewsCenter/PressRelease.aspx?tid=8c59a63d-97b9-4075-a625-4e71e529653b>, accessed August 26, 2016.

<sup>257</sup> <http://www.holdings.cas.cn/gsgl2015/gsjj2015/>, accessed August 26, 2016.

<sup>258</sup> <http://english.holdings.cas.cn/English/AC/CP/>; <http://www.holdings.cas.cn/ztyw/gqgl/>, accessed August 26, 2016.

<sup>259</sup> <http://www.holdings.cas.cn/qydj2015/>, accessed August 26, 2016.

KYKY Technology	北京中科科仪股份有限公司	<a href="http://www.kyky.com.cn/">http://www.kyky.com.cn/</a>
CAS Software Engineering Center	北京中科院软件中心有限公司	<a href="http://www.sec.ac.cn/">http://www.sec.ac.cn/</a>
CAS Institute of Architecture Design and Research	中科院建筑设计研究院有限公司	<a href="http://www.adcas.cn/">http://www.adcas.cn/</a>
Beijing Zhongke Ziyuan Co., Ltd.	北京中科资源有限公司	<a href="http://www.zkzy.com.cn/">http://www.zkzy.com.cn/</a>
CAS Shenyang Institute of Computing Technology	中国科学院沈阳计算技术研究所有限公司	<a href="http://www.sict.ac.cn/">http://www.sict.ac.cn/</a>
CAS Sky Technology Development Co., Ltd.	中国科学院沈阳科学仪器股份有限公司	<a href="http://www.sky.ac.cn/">http://www.sky.ac.cn/</a> ; Listed on Chinese NEEQ Exchange: 830852
CAS Nanjing Astronomical Instruments Co., Ltd.	中科院南京天文仪器有限公司	<a href="http://www.nairc.com/">http://www.nairc.com/</a>
CAS Chem	中科院广州化学有限公司	<a href="http://www.gic.ac.cn/">http://www.gic.ac.cn/</a>
CAS Guangzhou Electronic Technology Co., Ltd.	中科院广州电子技术有限公司	<a href="http://www.giet.ac.cn/">http://www.giet.ac.cn/</a>
CAS Chengdu Organic Chemicals Co., Ltd.	中国科学院成都有机化学有限公司	<a href="http://www.cioc.ac.cn/">http://www.cioc.ac.cn/</a>
CAS Chengdu Information Technology Co., Ltd.	中科院成都信息技术股份有限公司	<a href="http://www.casit.com.cn/">http://www.casit.com.cn/</a>
CAS Scientific Service Co., Ltd.	中科院科技服务有限公司	<a href="http://www.zkfw.com.cn/">http://www.zkfw.com.cn/</a>
Shanghai Bi Ke Clean Energy Technology Co., Ltd.	上海碧科清洁能源技术有限公司	<a href="http://www.cecc-tech.com/">http://www.cecc-tech.com/</a>
CAS Intellectual Property Investment Co., Ltd.	深圳中科院知识产权投资有限公司	<a href="http://www.caship.ac.cn/">http://www.caship.ac.cn/</a>
CASH Capital Investment Management Co., Ltd.	国科嘉和（北京）投资管理有限公司	<a href="http://www.cashcapital.cn/">http://www.cashcapital.cn/</a>
CAS Health Holdings	国科健康生物科技有限公司	<a href="http://www.cash.ac.cn/">http://www.cash.ac.cn/</a>
CAS Innovation Incubation and Investment Co., Ltd.	中科院创新孵化投资有限责任公司	NA.

Table 3: Enterprises in which CASH owns a stake, less than full control

Name (English)	Name (Chinese)	
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“CAS Puhui Technology Development Co., Ltd.”	北京中科普惠科技发展有限公司	<a href="http://www.ciccas.ac.cn/">http://www.ciccas.ac.cn/</a>
“Beijing Oriental Sunshine China Dream Technology Services Co., Ltd.”	北京东方阳光国梦科技服务有限公司	NA.
“Beijing CAS Chuangjia Human Resources Consulting Co., Ltd.”	北京中科创嘉人力资源咨询有限公司	<a href="http://www.casjob.com/">http://www.casjob.com/</a>
“CAS International Exchange Center, Co., Ltd.”	北京中科院国际学术交流中心有限公司	NA.
EA China	北京中科国金工程管理咨询有限公司	<a href="http://www.eachina.com.cn/">http://www.eachina.com.cn/</a>
“Beijing Zhongsheng Keli Testing Medical Technology Co., Ltd.”	北京中生可利检验医学技术有限责任公司	NA.
“Shenyang High Precision Digital Control Smart Technology Co., Ltd.”	沈阳高精数控智能技术股份有限公司	<a href="http://goldings.sict.ac.cn/">http://goldings.sict.ac.cn/</a> (Not working)
“Changchun Guoke Caijing Opto-electronics Co., Ltd.”	长春国科彩晶光电有限公司	NA.
China Technology Exchange	中国技术交易所有限公司	<a href="http://www.ctex.cn/">http://www.ctex.cn/</a>
China Science Publishing and Media Ltd.	中国科技出版传媒股份有限公司	<a href="http://www.sciencep.com/">http://www.sciencep.com/</a>
Nano Think	北京中科纳新印刷技术有限公司	<a href="http://www.nanothink.com.cn/">http://www.nanothink.com.cn/</a>
“Tianjin Haiguang Advanced Technology Investment Co., Ltd.”	天津海光先进技术投资有限公司	NA.

Corporate Registration Information for Chinese Academy of Sciences Holdings.<sup>260</sup>

<b>Corporate Registration Number</b>	110000003761238	
<b>Type of Company</b>	Limited liability company (state-owned) 有限责任公司(国有独资)	
<b>Registered Address</b>	Beijing, Haidian District, North Fourth Ring Road West, No. 9, Silver Valley Building 北京市海淀区北四环西路 9 号银谷大厦	
	<i>Phone</i>	010-62800118; 82525266
	<i>Website</i>	<a href="http://www.holdings.cas.cn/">http://www.holdings.cas.cn/</a>

<sup>260</sup> SAIC records accessed at <http://qyxy.baic.gov.cn/>, August 26, 2016.



<b>Other Contact Information</b> <sup>261</sup>	<i>Email</i>	cashholdings@rose.cashq.ac.cn; xjsun@cashq.ac.cn
<b>Date of Incorporation</b>	April 12, 2002	
<b>Registered Capital</b>	RMB 5.06703 bln	
<b>Authorized Scope of Business</b>	State-owned asset management and operation; program investment; investment management and consulting, business management consulting, high tech program research, technology development and transfer, technology consulting and services, technology promotion and related training, technology intermediary services.	

## Political or Government Connections

### Military Connections

- The Chinese Academy of Sciences is central to the Chinese national science and technology system and collaborates extensively with the People's Liberation Army and its military research institutes on projects in many technology domains.

### Government Connections

- Chinese Academy of Sciences Holdings (CASH) is a wholly state-owned asset management company set up under the Chinese Academy of Sciences in 2002 to manage its state-owned assets and investments.
- As a large, state-owned institution CASH has a local Chinese Communist Party Committee staffed by members of its senior management.

## Customers of Concern

### Military

- NA.

### Defense Industry




- NA.

<sup>261</sup> Searches were conducted for additional company contact information in Chinese job postings, résumés, B2B websites, and other online sources to supplement corporate information on file.

## Key Personnel

Based on searches of this entity's website, corporate data, and other online information, key personnel associated with Tianjin Hai Fu Tian Ding Technology Partnership (LP) include the following individuals:

### Board and senior management<sup>262</sup>

	<p><b>Wu Lebin (吴乐斌)</b><sup>263</sup></p> <ul style="list-style-type: none"> <li>• Wu is board chairman at CASH. He was appointed to this position in June 2014.<sup>264</sup></li> <li>• Wu previously served in a variety of administrative managerial positions within the Chinese Academy of Sciences central office and the CAS Institute of Biophysics from 1988 to 2005. He was president of affiliated pharmaceuticals company BioSino (<a href="http://www.zhongsheng.com.cn/">http://www.zhongsheng.com.cn/</a>) from 2003 until 2014.<sup>265</sup></li> <li>• Wu was born in 1962 and holds an EMBA from the University of Wisconsin, Madison.<sup>266</sup></li> </ul>
	<p><b>Tang Xudong (唐旭东)</b><sup>267</sup></p> <ul style="list-style-type: none"> <li>• Tang is a member of the CASH board of directors. He was appointed to this position in July 2011.<sup>268</sup></li> <li>• Tang has held administrative positions within the Chinese Academy of Sciences and Legend Holdings since 1986.</li> </ul>
<p>NA.</p>	<p><b>Zhang Guohong (张国宏)</b><sup>269</sup></p> <ul style="list-style-type: none"> <li>• Zhang is a member of the CASH board of directors.</li> <li>• Zhang was formerly president and Chinese Communist Party Secretary at China Sciences Group, a wholly-owned subsidiary of CASH.<sup>270</sup></li> </ul>
<p>NA.</p>	<p><b>Zhang Yongming (张永明)</b><sup>271</sup></p> <ul style="list-style-type: none"> <li>• Zhang is a member of the CASH board of directors.</li> <li>• </li> </ul>
	<p><b>Suo Jishuan (索继栓)</b><sup>272</sup></p> <ul style="list-style-type: none"> <li>• Suo is general manager at CASH.</li> <li>• Suo is also a member of the CASH board of directors.</li> <li>• Suo joined the Chinese Academy of Sciences Lanzhou Institute of Chemical Physics in 1991 after completing a Ph.D. at the same institution. He became a deputy general manager at CASH in 2009.<sup>273</sup></li> <li>• Suo was born in 1964 and is a member of the Chinese Communist Party.<sup>274</sup></li> </ul>
<p>NA.</p>	<p><b>Zhang Ping (张平)</b><sup>275</sup></p> <ul style="list-style-type: none"> <li>• Zhang is chairman of the supervisory board at CASH.</li> </ul>

## Profile XI: Chengdu Hi-Tech Investment Group Co., Ltd. (成都高新投资集团有限公司)

### Key Findings

- Chengdu Hi-Tech Investment Group is a wholly state-owned corporation set up by the Chengdu Chinese Communist Party Committee to manage development in the Chengdu High-tech Zone.
- The group manages the development of High-tech zones, implements project financing and management solutions, and operates and manages state-owned assets.
- The group has assets totaling approximately RMB 31 bln and has registered capital of RMB 13.49 bln.

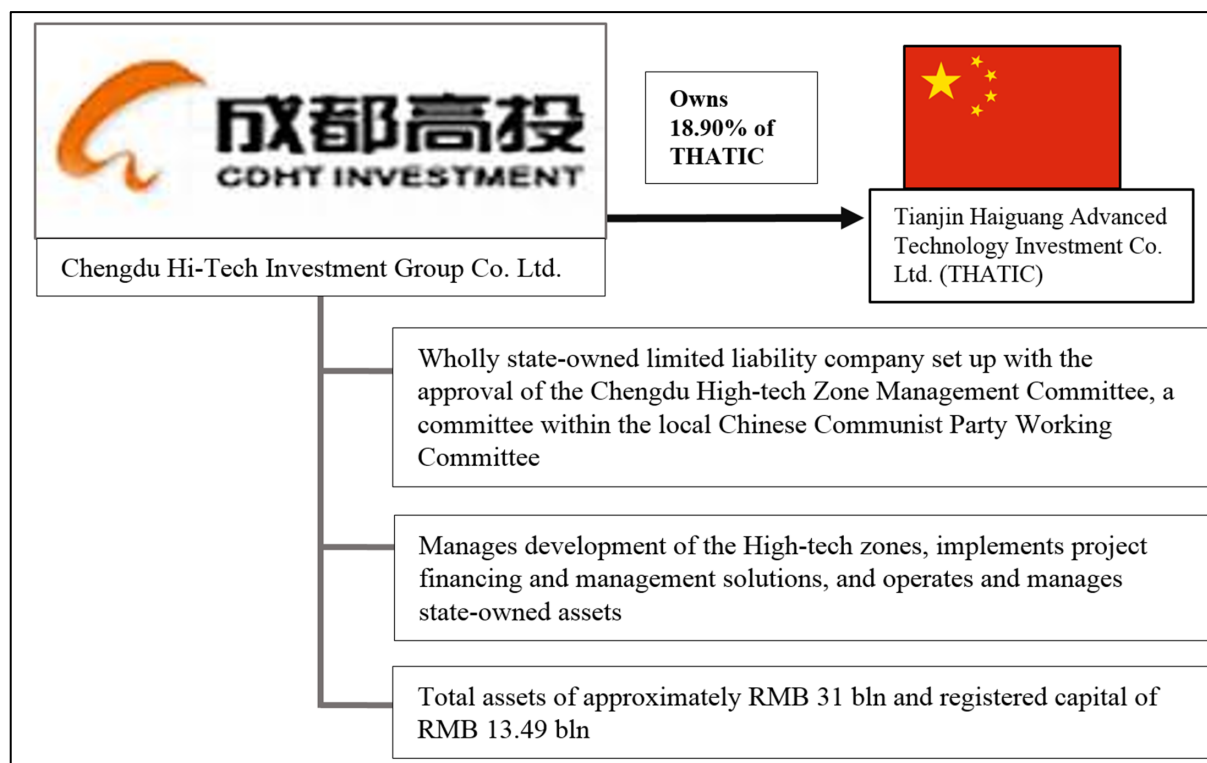


Figure 14: Summary of relevant ties and information for Chengdu Hi-Tech Investment Group Co., Ltd.

<sup>262</sup> This table is based on corporate executives and principals identified in this company's corporate records, website, and other online media.

<sup>263</sup> <http://english.holdings.cas.cn/English/AC/CG/>, accessed August 26, 2016.

<sup>264</sup> <http://www.futurechina.sg/cn/speakers/wu-lebin/>, accessed August 26, 2016.

<sup>265</sup> <http://www.futurechina.sg/cn/speakers/wu-lebin/>, accessed August 26, 2016.

<sup>266</sup> <http://www.futurechina.sg/cn/speakers/wu-lebin/>, accessed August 26, 2016.

<sup>267</sup> <http://english.holdings.cas.cn/English/AC/CG/>, accessed August 26, 2016.

<sup>268</sup> [http://www.holdings.cas.cn/gsgl/gszjg/201108/t20110801\\_3318720.html](http://www.holdings.cas.cn/gsgl/gszjg/201108/t20110801_3318720.html), accessed August 26, 2016.

<sup>269</sup> <http://english.holdings.cas.cn/English/AC/CG/>, accessed August 26, 2016.

<sup>270</sup> [http://www.casholdings.cn/xwxx/cgqydt/201504/t20150401\\_4330810.html](http://www.casholdings.cn/xwxx/cgqydt/201504/t20150401_4330810.html), accessed August 25, 2016.

<sup>271</sup> <http://english.holdings.cas.cn/English/AC/CG/>, accessed August 26, 2016.

<sup>272</sup> <http://english.holdings.cas.cn/English/AC/CG/>, accessed August 26, 2016.

<sup>273</sup> [http://www.holdings.cas.cn/gsgl/gszjg/200911/t20091103\\_2646808.html](http://www.holdings.cas.cn/gsgl/gszjg/200911/t20091103_2646808.html), accessed August 26, 2016.

<sup>274</sup> [http://www.holdings.cas.cn/gsgl/gszjg/200911/t20091103\\_2646808.html](http://www.holdings.cas.cn/gsgl/gszjg/200911/t20091103_2646808.html), accessed August 26, 2016.

<sup>275</sup> <http://english.holdings.cas.cn/English/AC/CG/>, accessed August 26, 2016.

## Company Profile

### Overview

Chengdu Hi-Tech Investment Group (CDHT Investment) is a wholly state-owned limited liability company set up with the approval of the Chengdu High-tech Zone Management Committee, a committee within the local Chinese Communist Party Working Committee, in September 1996. The group manages the overall development of the High-tech Zone South Park and West Park, implements project financing and management solutions, and operates and manages state-owned assets. The group has total assets of approximately RMB 31 bln and registered capital of RMB 13.49 bln.<sup>276</sup>

CDHT Investment is comprised of ten wholly-owned subsidiaries:<sup>277</sup>

- Chengdu Hi-tech Investment Real Estate Co., Ltd. (成都高投置业有限公司)
- Chengdu Hi-tech Investment Construction and Development Co., Ltd. (成都高投建设开发有限公司)
- Chengdu Hi-tech Investment Financing Guarantee Co., Ltd. (成都高投融资担保有限公司)
- Chengdu High-tech Investment Venture Capital Co., Ltd. (成都高投创业投资有限公司)
- Chengdu High-tech Investment Winpower Investment and Development Co., Ltd. (成都高投盈创动力投资发展有限公司)
- Chengdu Tianfu Software Park Co., Ltd. (成都天府软件园有限公司)
- Chengdu High-tech Investment Asset Management Co., Ltd. (成都高投资产经营管理有限公司)
- Chengdu Export Processing Zone International Trade Co., Ltd. (成都高投国际贸易有限公司)
- Chengdu High-tech Investment Sports Management Co., Ltd. (成都高投体育管理有限公司)
- “Chengdu High-tech Zone New Industrial Investment Co., Ltd.” (成都高新区拓新产业投资有限责任公司)

CDHT also controls an interest in more than 20 additional enterprises, including:<sup>278</sup>

- Sino-Singapore (Chengdu) Innovation and Technology Park Co., Ltd. (中新（成都）创新科技园有限公司)
- Chengdu Bonded Logistics Investment Co., Ltd. (成都保税物流投资有限公司)
- Diao Group Chengdu Pharmaceutical Co., Ltd. (成都地奥集团股份有限公司)

The business operations of CDHT Investment’s subsidiary Chengdu Tianfu Software Park reflect the CDHT Investment group’s close integration with the Chinese Communist Party and national government. The Chengdu Tianfu Software Park is recognized as one of 11 national software

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<sup>276</sup> <http://www.cdhtgroup.com/en/about/groupprofile.html>, accessed September 7, 2016.

<sup>277</sup> <http://www.cdhtgroup.com/en/about/groupprofile.html>, accessed September 7, 2016.

<sup>278</sup> <http://www.cdhtgroup.com/en/about/groupprofile.html>; <http://www.cdhtgroup.com/about/groupprofile.html>, accessed September 7, 2016.

industry bases in China and is located in the southern section of the Chengdu Hi-Tech Development Zone. It has supported numerous state-sponsored technology incubation projects, including the Ministry of Science and Technology’s “National Science and Technology Enterprise Incubator” and “Talent Cultivation Demonstration Base,” the Ministry and Human Resources and Social Security’s “National Venture Incubation Demonstration Base,” the Ministry of Industry and Information Technology’s “National Public Service Demonstration Platform for Small and Medium-Sized Enterprises,” and the China Central Communist Youth League’s “Chinese College Students Venture Park (Chengdu).”<sup>279</sup>

#### Corporate Registration Information for Chengdu Hi-Tech Investment Group.<sup>280</sup>

<b>Corporate Registration Number</b>	91510100633110883L	
<b>Type of Company</b>	Limited liability company (state-owned) 有限责任公司(国有独资)	
<b>Registered Address</b>	Chengdu Hi-tech Zone Tianfu Road North, No. 18, High-Tech International Square, Building A, Floor 6 (成都高新区天府大道北段 18 号高新国际广场 A 座 6 楼)	
<b>Other Contact Information</b> <sup>281</sup>	<i>Phone</i>	028-85327999
	<i>Website</i>	<a href="http://www.cdhtgroup.com/">http://www.cdhtgroup.com/</a>
	<i>Email</i>	<a href="mailto:info@cdhtgroup.com">info@cdhtgroup.com</a>
<b>Date of Incorporation</b>	October 28, 1996	
<b>Registered Capital</b>	RMB 13.49 bln	
<b>Authorized Scope of Business</b>	Investments related to construction, technology, trade development, and other projects related to national government policy. Investment project management and consulting, asset management and consulting, real estate development and operation.	

## Political or Government Connections

### Military Connections

- NA.

### Government Connections

- CDHT Investment Group is a wholly state-owned enterprise established by the CPC Chengdu Hi-tech Zone Working Committee.<sup>282</sup>

## Customers of Concern

### Military

- NA.

<sup>279</sup> [http://www.cdhtgroup.com/en/subsidiary/14\\_0\\_q\\_1879\\_0.html](http://www.cdhtgroup.com/en/subsidiary/14_0_q_1879_0.html), accessed September 7, 2016.

<sup>280</sup> SAIC records accessed at <http://gsxt.scaic.gov.cn/>, September 7, 2016.

<sup>281</sup> Searches were conducted for additional company contact information in Chinese job postings, résumés, B2B websites, and other online sources to supplement corporate information on file.

<sup>282</sup> <http://www.cdhtgroup.com/en/about/groupprofile.html>, accessed September 7, 2016.

## Defense Industry

- NA.

## Key Personnel

Based on searches of this entity's website, corporate data, and other online information, key personnel associated with CDHT Investment Group include the following individuals:

### Board and senior management<sup>283</sup>

	<p><b>Ran Guangjun (冉光俊)</b></p> <ul style="list-style-type: none"><li>• Ran is board chairman and Chinese Communist Party Committee Secretary at CDHT Investment Group.<sup>284</sup></li></ul>
	<p><b>Xu Junru (许君如)</b></p> <ul style="list-style-type: none"><li>• Xu is general manager of CDHT Investment Group and a deputy secretary of the group's Chinese Communist Party Committee.<sup>285</sup></li></ul>

<sup>283</sup> This table is based on corporate executives and principals identified in this company's corporate records, website, and other online media.

<sup>284</sup> <http://www.cdht.gov.cn/orgchannel/list.jsp?orgId=399>, accessed September 7, 2016.

<sup>285</sup> <http://www.cdht.gov.cn/orgchannel/list.jsp?orgId=399>, accessed September 7, 2016.

## Profile XII: Chengdu Lan Hai Qing Zhou Company Management Partnership (LP) (成都蓝海轻舟企业管理合伙企业 (有限合伙))

### Key Findings

- Chengdu Lan Hai Qing Zhou Company Management Partnership was set up as a limited partnership in March 2016, with two computer scientists – Tang Zhimin and Zhang Panyong – as partners.
- For a complete profile of Tang Zhimin, see page 17.
- Zhang Panyong has written research papers discussing high-powered computing and the Dawning 5000 series of supercomputers, specifically.

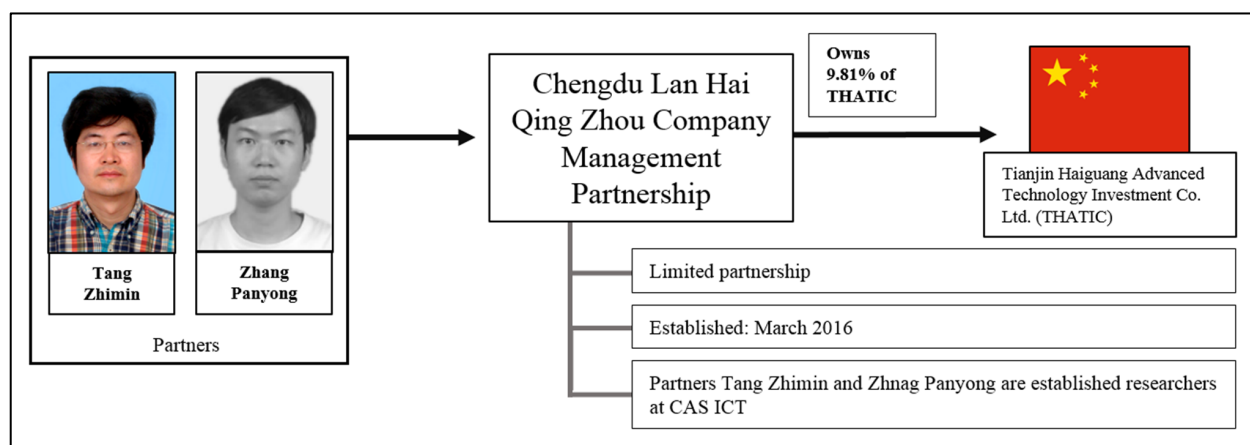


Figure 15: Summary of relevant information and ties for Chengdu Lan Hai Qing Zhou Company Management Partnership.

### Company Profile

#### Overview

Chengdu Lan Hai Qing Zhou Company Management Partnership was set up as a limited partnership in March 2016, with two computer scientists – Tang Zhimin and Zhang Panyong – as partners.

Tang Zhimin is a researcher at the Chinese Academy of Sciences Institute of Computing Technology who is also a partner in THATIC and its stakeholder Tianjin Hai Fu Tian Ding Technology Partnership (LP). Tang has a history of involvement with the Ministry of Science and Technology's 863 Program, a dual-use technology development program managed in part by the People's Liberation Army.<sup>286</sup>

Zhang Panyong is a computer scientist who has been affiliated with the CAS ICT National Intelligent Computing Research Center.<sup>287</sup> He has written research papers discussing high-powered computing and the Dawning 5000 series of supercomputers, specifically.<sup>288</sup>

<sup>286</sup> [http://sourcedb.ict.cas.cn/cn/jssrck/201202/t20120217\\_3441943.html](http://sourcedb.ict.cas.cn/cn/jssrck/201202/t20120217_3441943.html), August 17, 2016.

<sup>287</sup> <http://www.c-dblp.cn/author/%E5%BC%A0%E6%94%80%E5%8B%87>, accessed September 7, 2016.

<sup>288</sup> <http://www.ict.ac.cn/cxwh/cxqs/200905/P020090724566345866586.pdf>, accessed September 7, 2016.



Corporate Registration Information for Chengdu Lan Hai Qing Zhou Company Management Partnership.<sup>289</sup>

<b>Corporate Registration Number</b>	91510100MA61U18N42	
<b>Type of Company</b>	Limited partnership 有限合伙企业	
<b>Registered Address</b>	Chengdu Hi-Tech Zone Tianfu Road Central Section, No. 1366, Building 2, Floor 11, No. 31 (成都高新区天府大道中段 1366 号 2 栋 11 层 31 号)	
<b>Other Contact Information</b> <sup>290</sup>	<i>Phone</i>	NA
	<i>Fax</i>	NA
	<i>Email</i>	NA
<b>Date of Incorporation</b>	March 28, 2016	
<b>Registered Capital</b>	N.A.	
<b>Authorized Scope of Business</b>	Business management consulting, project investment, investment consulting, software development.	

### Political or Government Connections

#### Military Connections

- Tang Zhimin, a partner in Chengdu Lan Hai Qing Zhou Company Management Partnership, has a history of participation in the Ministry of Science and Technology's 863 Program, which is managed in part by the PLA.

#### Government Connections

- Tang Zhimin is a researcher at the Chinese Academy of Sciences Institute of Computing Technology, a state-operated research agency.
- Zhang Panyong completed his Ph.D. at CAS ICT and has also performed research funded by the 863 Program.<sup>291</sup>

### Customers of Concern

#### Military

- NA.

#### Defense Industry

- NA.

### Key Personnel

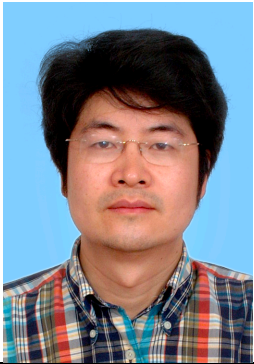

Based on searches of this entity's website, corporate data, and other online information, key personnel associated with Chengdu Lan Hai Qing Zhou Company Management Partnership include the following individuals:

<sup>289</sup> AIC records accessed at <http://gsxt.scaic.gov.cn/> on September 7, 2016. Direct link to record unavailable.

<sup>290</sup> Searches were conducted for additional company contact information in Chinese job postings, résumés, B2B websites, and other online sources to supplement corporate information on file.

<sup>291</sup> <http://www.c-dblp.cn/author/%E5%BC%A0%E6%94%80%E5%8B%87>, accessed September 7, 2016.



	<p><b>Tang Zhimin (唐志敏)</b><sup>293</sup></p> <ul style="list-style-type: none"> <li>• Tang is a researcher at the Chinese Academy of Sciences Institute of Computing Technology.</li> <li>• Tang's research focuses on computer system architectures, digital signals processing, and super large scale integrated circuit design.<sup>294</sup></li> <li>• For more information on Tang, see page 29.</li> </ul>
	<p><b>Zhang Panyong (张攀勇)</b></p> <ul style="list-style-type: none"> <li>• Zhang is a researcher who has been affiliated with the National Intelligent Computing Research Center at the Chinese Academy of Sciences Institute of Computing Technology.<sup>295</sup></li> <li>• Zhang was a Ph.D. candidate at CAS as of 2010.<sup>296</sup></li> <li>• Zhang published an article in a CAS newsletter in 2009, discussing the development of Sugon's Dawning 5000 line of supercomputers.<sup>297</sup></li> <li>• Zhang has written articles about high powered computing and networking computing clusters.<sup>298</sup></li> <li>• Zhang is listed as the executive partner in Chengdu Lan Hai Qing Zhou Company Management Partnership registration documents.<sup>299</sup></li> </ul>

<sup>292</sup> This table is based on corporate executives and principals identified in this company's corporate records, website, and other online media.

<sup>293</sup>

<sup>294</sup> [http://sourcedb.ict.cas.cn/cn/jssrck/201202/t20120217\\_3441943.html](http://sourcedb.ict.cas.cn/cn/jssrck/201202/t20120217_3441943.html), August 17, 2016.

<sup>295</sup> <http://www.c-dblp.cn/author/%E5%BC%A0%E6%94%80%E5%8B%87>, accessed September 7, 2016.

<sup>296</sup> <http://cjc.ict.ac.cn/quanwenjiansuo/2010-2/zpy.pdf>, accessed September 7, 2016.

<sup>297</sup> <http://www.ict.ac.cn/cxwh/cxqs/200905/P020090724566345866586.pdf>, accessed September 7, 2016.

<sup>298</sup> <http://www.c-dblp.cn/author/%E5%BC%A0%E6%94%80%E5%8B%87>, accessed September 7, 2016.

<sup>299</sup> <http://gsxt.scaic.gov.cn/>, accessed September 7, 2016. Direct link to record unavailable.

## Profile XIII: Tianjin Binhai Technology New Area Asset Management Co., Ltd. (天津滨海高新区资产管理有限公司)

### Key Findings

- Tianjin Binhai Technology New Area Asset Management is a wholly state-owned asset and property management company set up by the Tianjin Binhai Technology and Industry Development Zone (天津滨海高新技术产业开发区).
- Its chairman, Sun Limin, is concurrently secretary of the company's local branch committee of the Chinese Communist Party.

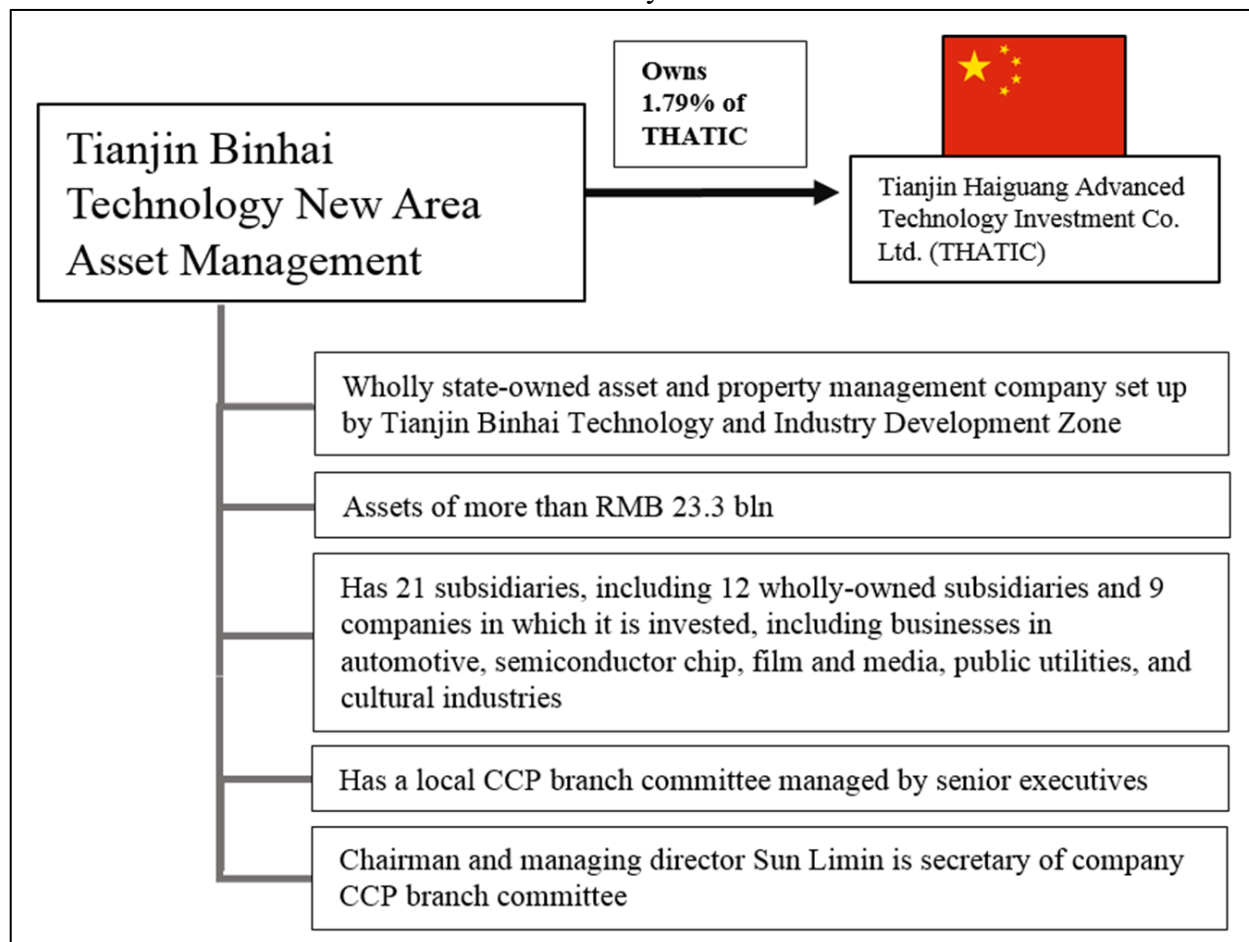


Figure 16: Summary of relevant ties and information for Tianjin Binhai Technology New Area Asset Management.

### Company Profile

#### Overview

Tianjin Binhai Technology New Area Asset Management is a wholly state-owned asset and property management company set up by the Tianjin Binhai Technology and Industry Development Zone (天津滨海高新技术产业开发区). It operates as an investment platform and regional development entity to support development within the zone.<sup>300</sup> Its total assets amount to more than RMB 23.3 bln and it has 21 subsidiaries, including 12 wholly-owned subsidiaries and

<sup>300</sup> <http://www.bpic.com.cn/hotNews/45347.jhtml>, accessed September 8, 2016.

9 companies in which it is invested, including businesses in the automotive, semiconductor chip, film and media, public utilities, and cultural industries.<sup>301</sup>

#### Corporate Registration Information for Tianjin Binhai Technology New Area Asset Management.<sup>302</sup>

<b>Corporate Registration Number</b>	120193000021105	
<b>Type of Company</b>	Limited liability corporation (state-owned) 有限责任公司 (国有独资)	
<b>Registered Address</b>	Hua Yuan Industrial Zone, Meiyuan Road No. 6, Haitai Building No. 812 (华苑产业区梅苑路 6 号海泰大厦 812 室)	
<b>Other Contact Information</b>	<i>Phone</i>	83712517
	<i>Fax</i>	NA
	<i>Email</i>	syq_bhgxgz@126.com
<b>Date of Incorporation</b>	December 3, 2008	
<b>Registered Capital</b>	RMB 7.8686057 bln	
<b>Authorized Scope of Business</b>	Asset management, real estate and machinery equipment leasing, parking services, operating subsidiaries.	

### Political or Government Connections

#### Military Connections

- NA.

#### Government Connections

- Tianjin Binhai Technology New Area Asset Management is a wholly state-owned investment and asset management platform set up by the Tianjin Binhai Technology and Industry Development Zone.
- As a large, state-owned business entity Tianjin Binhai Technology New Area Asset Management maintains a branch committee of the Chinese Communist Party, managed by senior executives at the company.

### Customers of Concern

#### Military

- NA.

#### Defense Industry

- NA.

<sup>301</sup> <http://www.bpic.com.cn/hotNews/45347.jhtml>, accessed September 8, 2016.

<sup>302</sup> SAIC records accessed at <http://tjcredit.gov.cn> on September 8, 2016.

## Key Personnel

Based on searches of this entity's website, corporate data, and other online information, key personnel associated with Tianjin Binhai Technology New Area Asset Management include the following individuals:

### Board Members and Management<sup>303</sup>

No Photo Available.	<b>Sun Limin (孙丽敏)</b> <ul style="list-style-type: none"> <li>Sun Limin is chairman of Tianjin Binhai Technology New Area Asset Management.</li> <li>Sun is also the company's managing director.</li> <li>Sun Limin is secretary of the Chinese Communist Party Committee branch organization at Tianjin Binhai Technology New Area Asset Management.<sup>304</sup></li> </ul>
No Photo Available.	<b>Huo Ying (霍颖)</b> <ul style="list-style-type: none"> <li>Huo Ying is a director at Tianjin Binhai Technology New Area Asset Management.</li> </ul>
No Photo Available.	<b>Wang Lei (王蕾)</b> <ul style="list-style-type: none"> <li>Wang Lei is a director at Tianjin Binhai Technology New Area Asset Management.</li> </ul>
No Photo Available.	<b>Hu Wei (胡伟)</b> <ul style="list-style-type: none"> <li>Hu Wei is chairman of the supervisory committee at Tianjin Binhai Technology New Area Asset Management.</li> </ul>
No Photo Available.	<b>Xu Jing (许静)</b> <ul style="list-style-type: none"> <li>Xu Jing is a supervisor at Tianjin Binhai Technology New Area Asset Management.</li> </ul>
No Photo Available.	<b>Ma Xiaojuan (马晓娟)</b> <ul style="list-style-type: none"> <li>Ma Xiaojuan is a supervisor at Tianjin Binhai Technology New Area Asset Management.</li> </ul>
No Photo Available.	<b>Zhang Jiaming (张嘉明)</b> <ul style="list-style-type: none"> <li>Zhang Jiaming is a supervisor at Tianjin Binhai Technology New Area Asset Management.</li> </ul>
No Photo Available.	<b>Wang Chunling (王春岭)</b> <ul style="list-style-type: none"> <li>Wang Chunling is a supervisor at Tianjin Binhai Technology New Area Asset Management.</li> </ul>

<sup>303</sup> This table is based on SAIC records at <http://tjcredit.gov.cn/>, accessed September 8, 2016.

<sup>304</sup> [http://www.tht.gov.cn/gxqdt/system/2016/06/06/010115532\\_02.shtml](http://www.tht.gov.cn/gxqdt/system/2016/06/06/010115532_02.shtml), accessed September 8, 2016.