



Key Findings

Strengthening ROK-United States

Science & Tech Partnership on Critical Technologies Dialogue

Session 2: A US-South Korea Technological Alliance on Semiconductors: Promises, Pressures, and Prospects

September 29, 2022 (US) | September 30, 2022 (Asia)

On September 29, 2022, with support from the Consulate General of the Republic of Korea in Honolulu, and in partnership with the George Mason University Korea’s Center for Security Policy Studies, the Pacific Forum hosted the second virtual session of *Strengthening ROK-United States Science & Tech Partnership on Critical Technologies*, “A US-South Korea Technological Alliance on Semiconductors: Promises, Pressures, and Prospects.” Over 40 participants (excluding speakers and staff) from the government, private sector, academia, and other non-governmental organizations participated in this virtual event.

June Park, political economist and Fung Global Fellow of the Princeton Institute for International and Regional Studies, **Dan Kim**, Vice-President and Chief Economist of SK hynix, and **Alexandra Seymour**, Associate Fellow for the Technology and National Security Program at the Center for a New American Security, examined the opportunities and challenges of American and South Korean collaboration on semiconductors.

The Key Findings from this webinar are below.

The recently signed US CHIPS and Science Act of 2022 is the most significant industrial policy legislation since the 1970s. The US\$52 billion worth of subsidies represent a crucial turning point for the country in revitalizing its semiconductor manufacturing industry. The implementation of the Act will be a litmus test for further prospects for US-ROK cooperation, as Korean speakers expressed concern that the lion’s share of subsidies could go to American companies like Intel.

Amid excitement over the so-called Chips 4 or Fab 4 alliance—a US-led semiconductor partnership comprising Japan, South Korea, and Taiwan—details regarding the grouping remains scant. The speakers argued that the US must articulate more concrete objectives for the proposed alliance. They also emphasized the importance of a mutually beneficial strategy for all four members—not an easy task given the interests of each member country to protect and champion their own semiconductor companies.

The experts were concerned that the Chips 4 alliance would be lopsided, favoring mostly US companies. One speaker surmised that the sole focus of the alliance would be on export controls, particularly toward limiting access to advanced micro-chip technology and highly capable

semiconductor engineers. The emphasis on “Made in America” will likely be to the detriment of South Korea, Japan, and Taiwan—as exemplified by a recent instance in which US Secretary of Commerce Gina Raimondo dissuaded a Taiwanese company from investing in South Korea and instead persuaded major semiconductor companies from the two countries to produce leading-edge chips in the US.

The recent global shortage of semiconductors underscores the urgency for resilient supply chains and broader cooperation. One speaker viewed the Chips 4 alliance as a major contingency plan for the US in the event of a Taiwan invasion, as the alliance could mitigate global disruptions in the semiconductor supply chain. Additionally, the US is deeply concerned over China's increasing access to dual-use technologies such as semiconductors that can be used to develop sophisticated nuclear and artificial intelligence capabilities.

Amid current geopolitical tensions and calls to decouple from China, the Chinese semiconductor industry remains a key consumer market and a major source of raw materials. For these practical reasons, one speaker contended that the deep commercial interests of South Korean and Taiwanese companies in China might deter Taipei and Seoul from fully acceding to the Chips 4 alliance—pulling back from any US request to divest from the lucrative Chinese market.

The speakers anticipate an executive order flowing down from the US Department of Commerce for scrutinizing outbound investment for national security reasons. Although all recognized the impetus behind this move and appreciated the engagement and coordination by the US National Security Council, one noted that South Korea's (and to a certain extent, Taiwan's) semiconductor industries should not be viewed narrowly from a national security perspective. Samsung and SK hynix are considered South Korea's economic lifeblood. While Japanese and American production capability in semiconductors has declined and industrial priorities have shifted over the past three decades, South Korea has remained steadfast and risk tolerant in its investments in infrastructure, equipment, and human capital.

Despite a highly competitive market, the US and ROK semiconductor industries already feature strong bilateral cooperation. Thus, any production alliance should aim to bolster existing arrangements. Opportunities abound to increase research and development, enhance the security and protection of intellectual property, and improve cross-country workforce development and skills transfer.