

# US universities enlisted in military production as part of anti-China campaign

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Universities are being drawn ever more directly into the US war preparations against China. A central battleground in these war preparations is the semiconductor industry. Semiconductors are critical to the production, use and maintenance of planes, tanks, ships and other weapons systems.

In an effort to offset the decline of the US position in the global semiconductor industry, the US government has ramped up its investments in US-based semiconductor manufacturers for military production and the enrichment of defense company shareholders.

The CHIPS and Science Act of 2022 is a critical part of these efforts. It was passed with bipartisan support and committed \$280 billion over five years to the American semiconductor industry and scientific research in several strategic high-tech disciplines.

As part of the bill, tens of billions of dollars in research funding will flow into academia. Commenting on the impact of the legislation on academia in the September 13 article “Not Just Chips,” *Inside Higher Ed* rejoiced that the “scale of new funding opportunities for universities is seismic.”

As of 2023, the Department of Defense already accounts for 60 percent or more of total Research and Development funding at universities in fields such as aerospace, aeronautical and astronautical engineering. It also provides over 50 percent of federal funding for university research in electrical, electronic, communications and mechanical engineering, and nearly half of federal funding in computer and information science. Now, the proportion of funding for university research that is directly tied to the war machine will increase even further.

The Act, much like many of the universities that its funding is going towards, embraces identity politics. *Inside Higher Ed* reported that “many of the act’s provisions are designed to ensure that some funding is routed to historically Black colleges and universities, minority-serving institutions, community colleges, and institutions in states that historically have not benefited from this type of federal support.” In other words, the efforts to cultivate support among more affluent sections of African Americans and other minorities are directly tied to funding on behalf of the imperialist war machine.

A number of universities are now involved in the CHIPS and Science Act, helping develop key components of the imperialist war machine. Arizona State University made a press announcement that was explicit about ASU’s intention to work for “national security enterprises” as part of the Act:

Responsive to action initiated by the Department of Defense, Arizona State University President Michael Crow has appointed two senior leaders to guide the university in creating a world-class center of excellence for microelectronics research, development education and training. ... The CHIPS and Science Act includes \$2 billion for DoD to establish the Microelectronics Commons, which

aims to close the innovation “lab-to-fab” capabilities gap in the United States. By building enduring partnerships across emerging technology research and development, manufacturing and government stakeholders at all levels, the Microelectronics Commons will work to scale the semiconductor technologies necessary for the U.S. national security enterprise, and develop the skilled American workforce needed for this essential sector.

Also involved is Purdue University in Indiana, which is leading the Scalable Asymmetric Lifecycle Engagement program. On its website, Purdue described the program as “the preeminent U.S. program for semiconductor workforce development in the defense sector.” Its aim is to train “highly-skilled U.S. microelectronics engineers, hardware designers, and manufacturing experts, ensuring U.S. leadership in this important area.”

In total, the program involves 17 US universities, including Vanderbilt University, Georgia Tech, Ohio State University, SUNY Binghamton and Indiana University, with 67 faculty and staff spread across them and over 200 students enrolled at present. The institutions receive a total of \$30 million in funding from the Department of Defense for their participation in the program.

## The Naval Surface Warfare Center

The program is managed by the Crane division of the Naval Surface Warfare Center (NSWC), which is under the Naval Sea System Command (NAVSEA), headquartered in Washington D.C. According to NAVSEA’s website, it is “the force behind the fleet.”

NSWC Crane is a shore command of the US Navy located in Crane, Indiana, under the NSWC that develops, maintains and upgrades numerous key weapons systems for the Navy and other armed forces sections. NSWC Crane focuses on “expeditionary warfare,” including developing and deploying “sensors and communications technologies that enable the most advanced intelligence gathering, and surveillance capabilities for ground, surface and air support” and special weapons systems.

The NSWC has also been working with the fascist-ridden Special Operations Command (SOCOM)—which is headquartered in the Pentagon—since its inception in 1987 and is playing a “vital role” in it. SOCOM is the unified command for US special forces, and as of 2021 was deployed to 154 countries covering 80 percent of the world’s nations. SOCOM is charged with carrying out the most secretive and illegal military operations and works closely with, and sometimes under, the direct authority of the CIA.

NSWC Crane also focuses on “strategic missions,” including radar surveillance, integrated missile defense (IMD), and Global Strike, which focuses on nuclear warfare, including Submarine Launched Ballistic Missiles (SLBM), and land-based Intercontinental Ballistic Missiles (ICBM).

Notably, NSWC Crane’s archived March 2022 Global Strike fact sheet states that, “Teaming with academia is an important element to the depth of work the Strategic Mission Center provides to the Warfighter.” It lists partners with Global Strike as Indiana University, Vanderbilt University, Purdue University, Texas A&M University and Penn State University—that is, many of the institutions now involved in the SCALE program. The fact sheet was drawn up before the passage of Biden’s CHIPS and Science Act. This pattern persists through most of its programs as will be shown below.

NSWC Crane’s other focus is electronic warfare (EW) in ground, air and naval forces. Its Electronic Warfare Center is set up for this purpose. Crane has provided full technical support and development in partnership with private industry, including Raytheon, Northrop Grumman, General Dynamics and Lockheed Martin and ITT Corp., for the AN/SLQ-32(V) electronic warfare suite. Since 1984, AN/SLQ-32(V) has been built by Raytheon (initially by Hughes Aircraft), which an archived fact sheet lists as being “installed on every combat surface ship in the Navy.” It has developed test equipment for conducting “Operational Readiness Certification” for the AN/SLQ-32. The system is used for threat detection and countermeasures against anti-ship missiles, providing for detection of missiles before they are even fired by detecting high frequency targeting and fire-control radars, and electronic jamming of missile guidance, among other features.

The Ground Electronic Warfare (EW) component of NSWC Crane focuses on so called Counter RCIED Electronic Warfare (CREW) systems. These are designed to counter Radio Controlled Improvised Explosive Devices (RCIED) systems. This expertise is provided to the US Navy, Air Force, Marine Corps, Army, as well as “coalition partner forces.” In addition to working with numerous organizations that are affiliated with the Department of Defense (DoD) and private industry, the ground EW component of Crane collaborates with the Johns Hopkins Applied Physics Laboratory, Indiana University-Purdue University Indianapolis, Georgia Institute of Technology and Purdue University.

The Air EW component deals with systems airborne jamming systems such as those found on aircraft like the EA-18G, C-130 variants, and EP-3 Aries II and P-3 Orion. It also deals with information collection for these aircraft and training for crews. The fact sheet also states that Crane “is a leader in IRCM (Infrared Counter Measures) solution development and testing for multiple airborne platforms for all of the DoD.” The Air Electronic Warfare component partners with the government and private industry, including Northrop Grumman, Exelis Inc. and Science Applications International Corp. In academia, its partners include the Johns Hopkins University Applied Physics Laboratory and Purdue University as well as the Penn State Electro-optics Center, whose aim is to “research and develop innovative solutions” for NSWC Crane.

## The University of Texas at Dallas

Another university that plays an important role in US war strategy to dominate the semiconductor industry is the University of Texas at Dallas (UTD), a public university with a student body of 29,500. The university is particularly well equipped for semiconductor research and had initially been established by semiconductor manufacturer Texas Instruments in 1961 in order to train more employees for the company due to a lack of

qualified personnel in the Dallas-Fort Worth area at the time.

According to a university news release, the university has created a new center called the Center for Harsh Environment Semiconductors and Systems (CHESS), which is an initiative under the newly created North Texas Semiconductor Institute (NTxSI). The press release notes that NTxSI “positions UTD to contribute to the goals of the recently enacted federal CHIPS and Science Act of 2022. The CHIPS (Creating Helpful Incentives to Produce Semiconductors) Act provides \$52.7 billion in incentives over five years for American semiconductor research, development, manufacturing and workforce development.”

The pro-war character of NTxSI is exposed by the statements of the director of CHESS. The news release reads:

Dr. Manuel Quevedo-Lopez, director of CHESS, said microelectronic devices capable of operating in harsh environments are vital for national defense in applications such as quantum computing; resilient networks and communication systems; resilient electrical grids; autonomous vehicles; space exploration; and hypersonic weapons, which travel beyond Mach 5, five times faster than the speed of sound (Mach 1).

That is, these are technologies explicitly designed for warfare.

The NTxSI held a “Harsh Environment Electronics Workshop” on November 1, which is a representative event of the collaboration of the university apparatus with the military industrial complex, as is shown by the speakers list.

The Department of Defense has a list of “trusted integrated circuit fabricators” that are scrutinized by DoD auditors for compliance with security requirements set up by the DoD, as well as with quality requirements for military hardware. The program was launched in 2003 to 2004. Only 16 foundries are considered “trusted” by the DoD, in addition to one broker foundry. As the imperialist think-tank Center for Strategic and International Studies notes, while these foundries account for a small minority of devices used in military systems at only about 2 percent as of 2021, these are “generally chips used in secret programs or for application-specific uses such as radiation-hardened devices for use in space or nuclear conflict.”

The speakers list on the agenda of the “Industrial Session” of the workshop illustrates the character of NTxSI as a nexus of the military industrial complex at the University of Texas in Dallas. What made the event stand out as one centered around warfare production is that it had a number of DoD trusted integrated circuit fabricators as well as other military-related semiconductor manufacturers presenting. The presentations fixated on electronics primarily for use in warfare. Notably, unlike the workshop held afterward on December 7, no workshop presentations were available on the university’s website.

These are some of the speakers:

- Helmut Puchner, Vice President Fellow Aerospace & Defense at Infineon Technologies AG, High Reliability Group, which produces computer memory for use by the military, and is a leading company in the semiconductor in military and aerospace market. These include high reliability radiation-hardened electronics, which are used in outer space, typically in satellites for military and commercial applications.

- Kenneth Decker, Director of TX Advanced Reliability at Qorvo gave a presentation on Qorvo Texas LLC’s radiation-hardened Gallium Arsenide and Galium Nitride transistors. Qorvo is one of the foundries trusted by the DoD and manufactures communications, electronic warfare equipment, radar, and space related technology. It is, one of seven DoD trusted sources of Gallium Nitride transistors and one of six trusted sources of Gallium Arsenide transistors. According to a press release by

the company, Qorvo was awarded a DoD contract “to proceed with the Advanced Integration Interconnection and Fabrication Growth for Domestic State of the Art (SOTA) Radio Frequency Gallium Nitride (GaN) program, also known as STARRY NITE, as part of the Office of Undersecretary of Defense Research & Engineering’s (OUSDR&E) microelectronics roadmap.” A presentation by S2MARTS lists some of the applications of GaN in a presentation from July 1, 2021. These include electronic warfare jammers, ground, air, and naval radar, and military communication systems.

- Babu Chalamala, Energy Storage Program Manager of Sandia National Laboratories, another one of the DoD’s 16 trusted foundries, gave a presentation on the Role of Energy Storage and Power Electronics in Grid Modernization. Sandia National Laboratories is one of six silicon on insulator (SOI) complementary metal-oxide-semiconductor (CMOS) transistors and one of three RH (radiation-hardened) SOI CMOS trusted fabrication suppliers. Sandia manufactures “radiation-hardened trusted components for Nuclear Weapons,” including for the B61 thermonuclear gravity bomb, and the W87 and W88 ICBM thermonuclear warheads.

- Ron Dusterhoft, a Technology Fellow for the defense company Halliburton, was scheduled to give a presentation on an unknown topic (announced as “TBD”). Halliburton is an American multinational corporation responsible for most of the world’s hydraulic fracturing operations and is deeply implicated in war crimes of US imperialism. During the war in Iraq, in particular, the company reaped tremendous profits from no-bid contracts in the war zone awarded by its former CEO and then US vice president and corporate-military gangster Dick Cheney. Halliburton also bears responsibility for the poisoning of the Texas coast in the Deepwater Horizon Explosion in 2010 alongside British Petroleum (BP) and Transocean.

- A. Matt Francis, president and CEO of Ozark Integrated Circuits, gave a presentation on electronics in extreme environments. According to the US Small Business Administration, Ozark has been awarded over \$4 million in contracts by the Department of Defense, which is the leading source of government grants for the company, comprising around 37 percent of the total award amount. Some of the contracts include “supersonic capable single conditioning electronics for turbine engines” for use in the Air Force’s F35, for around \$50,000; High-Temperature Instrumentation for use in Hypersonic Engine Development, for the DOD and Defense Advanced Research Projects Agency, for \$1.5 million; and packing methods based on Silicon and SOI components for advanced control of turbine engines, for the DoD and Missile Defense Agency.

NTxSI is by no means the only connection of the university to the military. Other examples could be pointed to. Thus, the National Association of Black Engineers of Lockheed Martin awarded the 2022 Community STEM Impact Award to the assistant director of outreach in the Multicultural Center at the University of Texas at Dallas (UTD). The university also has a crosstown agreement with University of North Texas (UNT) so that UTD students can take Reserve Officer Training Cadets (ROTC) classes at UNT. Moreover, there are numerous research grants provided to university researchers from the Department of Defense.

NTxSI represents a new stage in the university’s integration into the military industrial apparatus. This development is paralleled at universities across the country as US imperialism ramps up its war preparations against China and is engaged in a war against Russia in Ukraine.

These war projects at the universities are discussed and negotiated by university administrations and privileged, pro-war layers of the professoriate behind the backs of students and the overwhelming majority of academic workers. No doubt most students would oppose these pro-war machinations of the university administration if they knew about them and understood their political significance.

This latent opposition by students to war and the war profiteers must be activated and oriented toward the working class. A new socialist anti-war

movement must be built to fight against war and its root cause, capitalism and replace it with a system where education is free and a guaranteed right, and science is developed for productive use and the benefit of society, not war.

*As part of an international IYSSE meeting series, the IYSSE at the University of Texas at Dallas is holding a meeting on the war in Ukraine and the political and historical principles for the building of a new anti-war movement by workers and young people. The meeting at UTD will be held on Tuesday, April 11. We urge students and workers in the area to attend. For details on the meeting at UTD or to find a meeting near you, click here.*



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