



Photo Release -- Northrop Grumman Delivers Four Significant Breakthroughs for DARPA's "Wait, What?" Technology Forum

September 9, 2015

Demonstrations include world's fastest microchip and record-breaking transmission of millimeter wave frequencies

REDONDO BEACH, Calif., Sept. 9, 2015 (GLOBE NEWSWIRE) -- Leveraging its advanced research expertise, Northrop Grumman (NYSE:NOC) will demonstrate unique solutions to national security challenges at the Defense Advanced Research Projects Agency's (DARPA) "Wait, What?" forum on future technologies.

Photos accompanying this release are available at: <http://media.globenewswire.com/noc/mediagallery.html?pkgid=35929>

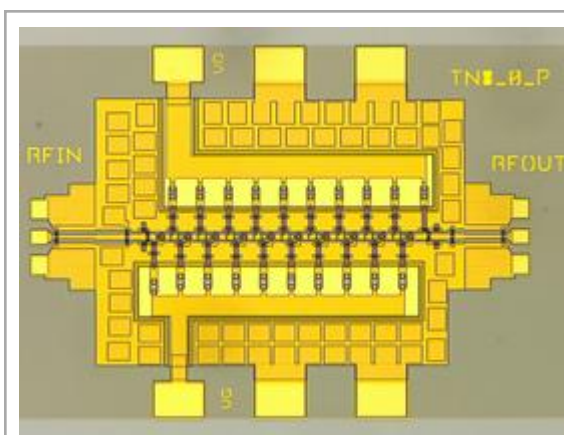
Four breakthrough innovations in microelectronics established by Northrop Grumman on behalf of the agency will be represented at the forum, to be held Sept. 9-11 in St. Louis, Missouri:

- **Terahertz (THz) Electronics:** Development of the world's fastest microchip, operating at one-trillion cycles per second, and demonstration of the world's highest frequency wireless link operating at 850 billion cycles per second. THz communications is capable of improving the capability of military systems by expanding a congested and contested electronic spectrum. (Demo number H5)
- **100G:** Demonstration of record-breaking combined data rate and spectral efficiency of 100 Gb/s communications data rate capacity in just 5 GHz of RF bandwidth, providing an assured mobile RF backbone communication network to the warfighter. (Demo number H7)
- **ICECool:** A solution to increase output power of circuits used in high-power military radar, communications, and electronic warfare RF transmitters by significantly cooling transistors. Microfluidic diamond technology is able to dissipate heat exceeding 40 kW/cm², considerably greater than the 6.3 kW/cm² power density of the sun's surface.
- **DAHI:** A new 3-D heterogeneous integration approach that enables the intimate micron scale combination of virtually any microelectronics technology, including high performance compound semiconductors and highly scaled complementary metal-oxide semiconductor (CMOS) technology, to improve performance and cost of military systems.

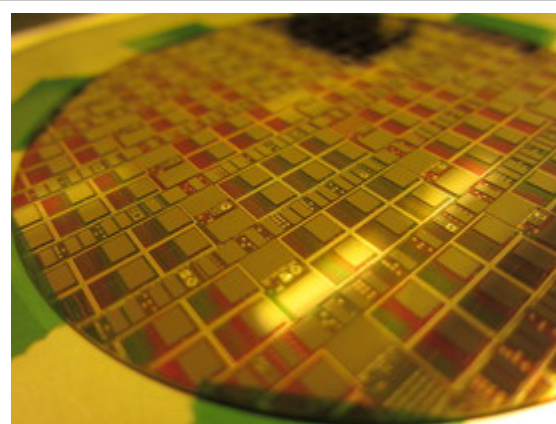
"Wait, What?" brings together select scientists, engineers and other innovators to discuss emerging solutions to tomorrow's challenges. Through the years, Northrop Grumman has been a trusted partner on numerous DARPA programs critical to national security, and is committed to shaping new technological trajectories with the agency.

Northrop Grumman is a leading global security company providing innovative systems, products and solutions in unmanned systems, cyber, C4ISR, and logistics and modernization to government and commercial customers worldwide. Please visit www.northropgrumman.com for more information.

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