20th Anniversary
Grand Opening Celebration
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AEGIS
TECHNOLOGIES

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When Bill Waite and Steve Hill formed a partnership 20 years ago, they decided to call their company AEgis, which refers to the shield or breastplate of ancient Grecian armor and to “an impenetrable defense.”

The concept of doing something “under someone’s aegis” means doing something under the protection of a powerful, knowledgeable or benevolent source. Waite and Hill have developed AEgis Technologies around those core philosophies and continue to stand by them today.

In its 20th year, Huntsville-based AEgis Technologies is at the intersection of its past, present and future with the opening of a new corporate headquarters for the Modeling, Simulation and Microsystems company in Cummings Research Park.

“Over our tenure of 20 years, modeling and simulation has come to be a strong technological discipline and profession - and it is coming to be a recognized industry,” says Bill Waite, chairman and chief technical officer. “AEgis has put itself in that mainstream – and I believe we’ve had some influence in working to make all of those things come true.”

Just like it was in 1989, Waite and co-founder Steve Hill’s optimism for the future has to do with the ubiquity and power of modeling and simulation technology.

Hill, who serves as president and CEO, says it has always been the company’s mission to become the premier modeling and simulation technology firm in the world.

“We are trying to be extremely good in all aspects of modeling and simulation and to design and fabricate microsystems,” Hill says. “We are certainly high tech in our intention and we enjoy very tough technological challenges – to imply we are aggressive in a positive sense.”

Of the company’s 200 employees, more than 90 percent have earned undergraduate or advanced degrees, more than 65 percent have at least 10 years experience in their chosen fields and 40 percent have served in the U.S. military.

“I'm a believer in hiring good people – not just in terms of competence – but character as well,” says Rodney Kreps, chief financial officer. “There's a level of personal satisfaction employees feel and it makes for a pretty unique, rewarding environment.”

Lance Cooper, chief operating officer, says building teams, supporting customers and allowing employees to grow their expertise are exciting aspects about working for AEgis.

“It is very satisfying to see people enjoying what they are working on, knowing that the end products are helping our government and armed forces do their job better,” Cooper says.

It’s also rewarding for Waite and Hill to see how their partnership has grown. It started when the engineer co-workers were laid off and decided to form their own company, working with one printer in Waite’s basement.

“Getting going on shoestring and bootstrapping is so fresh in my memory,” Waite says. “The kind of support we got from peers, colleagues and customers – you think about all those things at a time like this, when you’re preparing to move into a new facility.”
At AEgis Technologies, you’ll find a team of scientists and engineers who are passionate about changing the world with the tiniest of technological advances – from military to biomedical applications.

“Nanotechnology is revolutionizing manmade devices in much the same way genomics is revolutionizing medicine,” says David Thomas, vice president of Microsystems. “We are involved in pursuing what can be thought of as the computer revolution of our day. Engineering at the molecular scale allows us to get results that you can’t get with classical systems.”

In the new corporate headquarters, Thomas and his staff will be working in several new laboratories including a class 1000 clean room. A pure environment is important when you work with items so small they can’t be seen without a microscope. In everyday terms – in the nanoworld – a scientist could place thousands of features on something the size of the tip of a single human hair – which is about 200 microns in size.

“A lot of us are inspired by nano in nature,” Thomas says. “In some butterfly wings, the color you see is caused by nanoscaled features – so we can look at nature’s ability to control light very effectively and use similar techniques in manmade devices to control light and electronics to do things relevant in our world. All of it relies on micro and nano technology.”

Among other projects, the team is working to increase solar cell efficiency.

“If you improve the coupling of light into the solar cell then you can improve the efficiency,” Thomas says. “Solar cells are important for our energy future – advancing the technology so the cost per watt can compete with fossil fuels is our goal.”

The mission of AEgis Technologies’ geospatial programs is to build the most realistic looking 3D databases of real-world places as quickly and as affordably as possible.

“We want our databases to look better, while building them faster and cheaper than anyone else. And so far, we are doing it,” says David King, vice president of simulation development.

AEgis takes existing 2D and 3D imagery and ties them together for a synergistic approach.

“This is where the world of modeling and simulation meets the realm of geospatial,” says Scott Allman, director of geospatial programs. “We have the best creators of 3D content in the world.”

The team supports the Department of Defense and intelligence community, and also creates visualizations for commercial projects.

Allman and his fellow engineers recently built virtual models of the 2010 Vancouver Winter Olympics venues to be used by security personnel. They did a similar project for the 2008 Beijing Summer Olympics.

“NBC used it for situational awareness to show where events were located in the country,” says Lisa Caine, geospatial programs manager. “They could put icons on the screen so they could go to, say, a swimming or archery event – virtually flying through the country in 3D to get there, inside the venue and into a seat where they would then switch to live coverage.”

Allman’s team has modeled Afghanistan for the Department of Defense, and built everything from virtual conference rooms to city skylines.

“We want to be the leader in construction of the high fidelity world,” Allman says. “And we want to do it faster and better than anyone else on the planet.”
The "AEGIS" name alludes to the shield or breastplate of ancient Greek armor and to "an impregnable defense." The concept of doing something "under someone's aegis" means doing something under the protection of a powerful, knowledgeable, or benevolent source. Bill and Steve developed AEGIS around these core philosophies, and stand by them today.

AEGIS will house class 1,000 and class 10,000 clean room facilities dedicated to manufacturing micro and nano scale technologies through prototype and transition stages. The new building also has a laser laboratory and an expanded micro electronics and photonics laboratory dedicated to miniaturization of high performance sources, modulators and HWIL components.

AEGIS facility has a Simulation Development Demonstration Laboratory with tactical level simulation integration capabilities and a full-scale 3D Computer Modeling Lab for its geospatial engineers.

HIGHLIGHTS
- 50,000 sq. ft. new corporate headquarters
- Located on Jan Davis Drive in Cummings Research Park
- 3 classified labs including SCIF ability
- State of the art Clean Fabrication Laboratory
- Simulation Development Demonstration Laboratory
- Collaboration rooms to facilitate creative, out-of-the-box thinking
- Large conference room seats 150 people
- Majority window offices
- Full exercise facility
- Large outdoor patio for employee fellowship

“Our culture provides a professional environment for all employees to build a gratifying and prosperous career while rewarding personal initiative, hard work, integrity, respect, and teamwork.”

Steve HI, President & CEO

- 1990. Opened first office in Huntsville, AL.
- 1998. Received the Small Business of the Year Award.
- 1999. Opened an office in Albuquerque, NM.
- Exceeded $10M in revenues.
- Grew to 100+ employees.
- Formally changed the corporate name to AEGIS Technologies Group, Inc.
- 2001. Opened first office in Austin, TX.
- Executed $325M in revenues.
- Awarded DSB&J/LCCTC First $50M Contract.
- Awarded First Major Prime Contract - FEO STRI STC.
- 2004. AEGIS becomes ISO 9001 certified.
- 2006. Received the Torch Award for marketplace ethics.
- 2007. Developed 3D terrain and high resolution cultural extraction for Super Bowl XLI.
- Awarded BA to develop Thermal Imaging Sensor.
- Opened the Microsystems Laser Laboratory in Albuquerque, NM.
- Provided interactive 3D digital models and renders for NABC’s coverage of the Beijing Olympic Games.
Creating real world experiences without real world danger

Part of the job of David King, AEgis vice president of simulation development, is overseeing employees who build training simulators mostly for military purposes.

This past year, the team, led by Tony Lashley, director of simulator systems, built a Bell 412EP Search and Rescue helicopter simulator for Saudi Arabia. For pilots who will learn to fly the aircraft in the simulator, it is as real as any scenario they will face behind the controls.

The Simulation Training Systems Group builds the training devices. On the outside, the simulator may not look like a helicopter or airplane. But on the inside, it’s as real as it gets without the danger.

“AEgis delivers simulations and training systems across a variety of platforms, from high-end multimillion dollar systems to low-end laptops,” says Lashley.

The Weapons Simulation Group, led by Richard Robinson, director of hardware in the loop (HWIL), works on Redstone Arsenal and Eglin Air Force Base and is responsible for developing and operating real-time HWIL simulations for military weapon systems.

“Rather than performing expensive, destructive, one-shot, live-fire testing of the actual weapon systems in the field, HWIL simulation allows cost effective repetitive testing of the weapon systems in the laboratory,” says Robinson.

Limited missile flight tests are conducted and the simulations are validated against the data collected. The simulations are then refined to better replicate the actual missile flight and tracker characteristics.

Once the simulations are validated, AEgis can run thousands of simulations against every target and environment imaginable, such as battlefield conditions like smoke and fire, or environmental issues like rain, fog and snow.

“The cost savings to the U.S. tax payer are huge,” says King.
Before the battlefield

Whether simulating a non-lethal weapon or measuring high-energy lasers, AEgis plays a vital role in testing new technology before it hits the battlefield.

“We always want to help get systems fielded as quickly as possible, but we also want to make sure we’ve identified all areas of concern that need to be corrected before they are deployed,” says Pat Cannon, vice-president of AEgis Southwest Region, based in Albuquerque, N.M.

He says rapid acquisition products are always urgently needed in the field, but it’s important to know a system’s capabilities and limitations.

AEgis provides testing and evaluation support across a broad range of applications, from research and development to operational levels.

The Testing and Evaluation Group also handles non-traditional assessments for the Department of Defense and Advanced Systems and Concepts. For example, the Active Denial System (ADS) is an advanced concept technology developed by Raytheon for the U.S. Air Force. A demonstration of it has been featured on the Military Channel and CBS “60 Minutes.”

Cannon says it is intended as a non-lethal level of force that involves shooting high-power microwave energy at targets – making them feel like their skin is on fire, prompting them to run away.

“Really, after the beam is off the target, it stops hurting,” Cannon says. “But we’ve been doing the testing support for that over the past seven years.”

Among other interesting products Cannon’s group evaluates is the direct-ed energy instrumentation designed by the AEgis nanotechnology and microsystems group. It involves a small group of mesh sensors that wrap around a missile.

“Nobody has ever measured high energy lasers directly on the target because of the impact of high heat on the instrumentation,” Cannon says. “In the past, it wouldn’t have survived – so we’re using micro electro-mechanical systems technology to make the testing device smaller so they’ll survive better.

“It’s something nobody has ever done before and we’re on the cusp of measuring the heat source on a target.”

The AEgis Verification, Validation and Accreditation team makes sure its models and simulators do what they’re supposed to do, replicating real-world behavior in a laboratory environment, says Alleen Bray, director of Modeling and Simulation Verification, Validation and Accreditation (M&S VV&A).

“This includes representations of threats against the U.S., environmental effects, and phenomenology,” Bray says. “And most importantly, simulating performance aspects of defense applications as well.”

“We introduce elements of the environment, like rain or fog, in order to simulate their effects on our defense assets in a laboratory or distributive test environment,” she adds.

It’s expensive and often dangerous to do that type analysis and testing in the real world – which is the whole point of modeling and simulation.

Chuck Vaughan, an AEgis VV&A expert, says the team also works on program and technology assets protection solutions for major defense programs, such as the Surface-Launched Advanced Medium Range Air-to-Air Missile (SLAMRAAM) for the U.S. Army.

“It protects against several threat areas, but its main goal is providing a level of protection in areas that have never existed before now,” he says.

Danny Thomas, a senior research scientist, said AEgis is also supporting NASA with projects like Constellation, Ares and Orion, including writing a recommended practices guide on VV&A for NASA.
CONGRATULATIONS, AEGIS

ON YOUR NEW HEADQUARTERS

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