



Lockheed Martin Management Association Retirees

Newsletter

Looking Forward Towards A Wonderful Retiree Future!

MARCH 2014

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Needed: Staff Help

LMMAR needs volunteers to help keep LMMAR going. We particularly need a secretary and a newsletter editor.

If you think you can help please contact:

Norm Dhom, Membership Chair – (408) 732-2742

Jerry Vaughan, Treasurer – (408) 985-2708

Sepsis: Unremarkable Symptoms with Extraordinary Impact

February 24, 2014 Posted in Defense & Intelligence Solutions, Featured, IS&GS News, IS&GS-Defense, Our Business, Strategy

Sepsis is the 10th leading cause of death in the United States. An estimated 750,000 cases are identified annually, and the mortality rate is nearly 40 percent. Severe sepsis is also one of the most common causes of death in hospital critical care units, according to research from Penn Medicine. Often associated only with those critically ill or the elderly, sepsis does not discriminate on basis of age or condition.

Caught early, sepsis can be treated with strong antibiotics. However, the timeline for a sepsis infection to turn life-threatening is often measured in hours. In fact, for every hour of delay in treatment, the mortality rate increases by 7 percent, underscoring the need for a sophisticated early warning system that follows changes in a patient's

condition. A recent study labels sepsis as the most expensive condition treated in hospitals today — accounting for more than \$20 billion in annual costs to the U.S. healthcare system.

Insight Gained from Outer Space

Automated sepsis detection systems aren't new, but the differences between Lockheed Martin's Sia™ algorithmic platform and the conventional sepsis detection systems are timing and accuracy. The current Sepsis/Systemic Inflammatory Response Syndrome (SIRS) method of detecting sepsis accurately flags sepsis patients 69 percent of the time; however, it incorrectly flags 65 percent of uninfected patients as well. This means almost all patients are flagged as septic at one time or another.

In contrast, IS&GS's approach continually monitors changes in patient vital signs and blood work and uses sophisticated data analytics to flag sepsis cases. Initial findings in a trial that included more than 4,500 patients

disclosed Lockheed Martin's solution correctly identified cases of sepsis more than 90 percent of the time and, on average, 14 to 16 hours before the conventional approach reached diagnosis. Less than one percent of patients were incorrectly flagged as potentially septic.

"In missile detection, IS&GS treats data as continuously changing signals, and we thought there was a strong analogy to look at vitals and lab data the same way," said Tim Reardon, vice president of Defense and Intelligence Solutions. "We took our insights from real-time, streaming sensor data, detecting missiles at mach speeds, and reapplied those same techniques to real-time patient data."

Delivering Accuracy in Time for Recovery

"Our current sepsis algorithm is targeted for the general population," says Mike Draugelis, IS&GS chief data scientist. "But with additional research, we can focus on categories of patients: the elderly, the very young, can-

cer patients and heart disease patients. By focusing on similar patient groups, we should be able to improve our accuracy even further to drive an even earlier diagnosis of sepsis.”

Industry stakeholders see a broad potential to use Sia™ for early detection and high accuracy across many conditions. The same data analytic techniques used to diagnose sepsis may also be able to predict myocardial infarction or the onset of diabetes and blood clots, among others.

“Lockheed Martin’s solution leverages the best in science, clinical protocols and data processing to achieve unparalleled levels of detection accuracy” said Heather Lavoie, President of Geneia, a Capital Blue Cross subsidiary that focuses on health care innovations. “We see broad potential to use this solution for early detection and high accuracy across numerous conditions to cost-effectively improve the health of our customers.”

All of this leads to better accuracy, lower mortality rates, higher recovery rates, and cost-effective improvements in health — a new level of defense for our nation, and the world.

Hammerlund Cruise

Hi All,

We are officially out of the Caribbean Islands and running down the East Coast of South America. So far, we have hit Fort Lauderdale, the Islands of Grand Caymans, Cozumel, St. Thomas, Antigua, Barbados, and Trinidad. The temperature started off in the 70's in Florida and has gone up about 4 degrees in temperature everyday now. The daylight lasts almost exactly twelve hours, and we are at about 0.5 South degree Longitude right now. We crossed the equator at 3 PM yesterday. It is 5 PM. And the outside temperature is about 85 degrees. From the 15th level of the ship all we can see our 360 degree view is the blue Atlantic Ocean ... horizon to horizon. We meet a lot of people from all over the world on the ship, many of them

escaping the cold weather of the eastern half of the U.S. and Canada. Several couples and singles say they stay on warm water cruises until it gets warmer at home. The record so far is a woman who, during the 92 cruises that she has taken, has spent over 1300 days on cruise ships. (She used to hop on board cruises to Hong Kong, purchase business suits for her husband, and then return to New York.) It is easy to see why she likes cruise ships because everyone is so friendly and easy to talk to. Most of the passengers on this long cruise are retired and don't have the pressures of work. All like to talk about their recent travels. Some just like sit by a window and read. Others do like we do and go to Spanish classes, go to lectures by people have written books, play games with others, swim or just lay in the sun by the pools. Bernie Koppel, the man who played the Doctor from the Love Boat TV show, gave an hour long talk. He has a great sense of humor. We had our pictures with him. Tomorrow, we should dock at Recife, Brazil. We will write more later.

Bill and Jan Hammerlund

LMMAR Bridge

Feb 4 - Individual Duplicate – 1st Place – Ted Hinshaw, 2nd Place - Doug Gordon, 3rd Place - Angie Schynert, and 4th Place – Alex Fucile.

Feb 6 – Pairs Duplicate - 1st Place – Gary Bea & Chuck Schmidt and 2nd Place - Roger Abegg & Doug Gordon.

Feb 11 - Individual Duplicate - 1st Place (tie) Doug Gordon, Dave Himmelblau, and Dan Sloan; and 4th Place - Dave Topka.

Feb 13 - Pairs Duplicate – 1st Place - Angie Schynert & Bob Vigeant and 2nd Place - Roger Abegg & Doug Gordon.

Feb 18 - Individual Duplicate - 1st Place – Dave Topka, 2nd Place – Alex Fucile, 3rd Place – Doug Gordon, and 4th Place – Dave Himmelblau.

Feb 20 – Pairs Duplicate – 1st Place – Angie Schynert & Bob Vigeant and 2nd Place - Roger Abegg & Doug Gordon.

Feb 25 – Pairs Duplicate – 1st Place - Roger Abegg & Doug Gordon and 2nd Place - Dan Sloan & Bob Vigeant

Feb 27 – Pairs Duplicate – 1st Place – Gary Bea & Chuck Schmidt and 2nd Place - Roger Abegg & Doug Gordon.

2014 LMMAR LUNCHEON DATES

Please post the following dates to your calendar:

April 25, 2014 at Michaels at Shoreline in Mt. View

August – (TBD) Barbeque at Central Park In Santa Clara

October 31, 2014 at Michaels at Shoreline in Mt. View

December 5, 2014 at Michaels at Shoreline in Mt. View

For further information, please contact Lucille Wilson at 408.225.9566 or by e-mail at ken-lucille@comcast.net.

Business Hall of Fame

SUNNYVALE, Calif., Feb. 28, 2014 – Lockheed Martin’s [NYSE: LMT] Space Systems Company was inducted into the Business Hall of Fame by the San Jose Silicon Valley Chamber of Commerce last night.

“Lockheed Martin is proud to call Silicon Valley home for a number of our most innovative programs,” said Douglas R. Graham, vice president of advanced programs for Lockheed Martin Space Systems and member of the chamber’s board of directors, who accepted the award on behalf of Lockheed Martin at the chamber’s annual membership dinner in Santa Clara, Calif. “The credit goes to our employees for taking aerospace and defense technology into the future and being role models in the community for tomorrow’s engineers and leaders.”

“Lockheed Martin remembers its roots in this community while continually advancing technology solutions for the most demanding missions on earth and in space,” said Matthew Mahood, president and CEO of the chamber, who presented the award.

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Lockheed Martin is one of 22 businesses that have been inducted into the Business Hall of Fame since 2011, when the San Jose Silicon Valley Chamber of Commerce established the award. The award recognizes businesses that have operated in the Silicon Valley region for more than 50 years and have made significant contributions to economic growth, civic growth and community well-being.

Lockheed Martin began operations in Santa Clara County in 1956, when the corporation moved its Missile Systems Division from Southern California to what was yet to become Silicon Valley. The corporation first established a temporary office in San Jose as construction moved forward in Sunnyvale and Palo Alto, and it opened a testing facility in Santa Cruz County the next year.



Douglas R. Graham, advanced programs vice president for Lockheed Martin Space Systems Company, accepts the Business Hall of Fame award on behalf of the company Feb. 27 from Michelle Peacock, board chair, and Matthew Mahood, president and CEO, San Jose Silicon Valley Chamber of Commerce.

As Lockheed Martin grew in Northern California so did its need for ever-more powerful electronic components, helping to seed the emergence of Silicon Valley. Aided by a symbiotic relationship with its neighbors, the company has achieved breakthrough after breakthrough – from protecting our nation with the first ballistic missile designed for underwater launch to

creating a deep window into the universe with the Hubble Space Telescope. Today, Lockheed Martin’s Silicon Valley innovations help scientists monitor solar activity and track tornadoes, aid manufacturers with nanotechnology materials, provide U.S. soldiers with secure communications and are preparing military forces to defend themselves with laser systems.

Lockheed Martin Space Systems Company employs approximately 6,000 people at its Sunnyvale, Palo Alto and Santa Cruz facilities.

Wave Energy

BALTIMORE, Feb. 11, 2014 – To advance the availability of alternative energy solutions, Lockheed Martin announced today that it has signed a contract with Victorian Wave Partners Ltd. to begin developing the world’s largest wave energy project announced to date. This is a significant step toward making ocean energy commercially available.



Wave power uses special buoys that use the rising and falling of ocean waves to generate electricity. Photo courtesy Ocean Power Technologies, Inc.

The 62.5-megawatt peak power wave energy generation project will be built off the coast of Victoria, Australia, using the PowerBuoy® wave energy converter technology of Ocean Power

Technologies (OPT). The project is scheduled to be built up in three stages, with the first stage producing approximately 2.5-megawatt peak power. Once completed, the project is expected to produce enough energy to meet the needs of 10,000 homes. As this project also contributes to Australia’s goal of 20 percent renewable energy by 2020, it has received significant grant support from ARENA (Australian Renewable Energy Agency).

Wave power devices extract energy from the surface motion of ocean waves. Unlike wind and solar sources, energy from ocean waves is very predictable and can generate electricity for more hours in the year than wind and solar. In addition, wave power devices are typically quieter and much less visually obtrusive as compared to wind turbines, which typically run more than 130 feet in height. In contrast, a PowerBuoy is only 30 feet in height above the waterline and is barely visible, as it is typically three miles offshore.

“We are applying our design and system integration expertise to commercialize promising, emerging alternative energy technologies, including ocean power,” said Tim Fuhr, director of ocean energy for Lockheed Martin’s Mission Systems and Training business. “This project extends our established relationship with OPT and Australian industry and enables us to demonstrate a clean, efficient energy source for Australia and the world.”

In this project, Lockheed Martin will provide overall project management, assist with the design for manufacturing of the PowerBuoy technology, lead the production of selected PowerBuoy components and perform system integration of the wave energy converters.

“We are pleased to be working with Lockheed Martin in connection with this exciting project in Australia,” said Charles F. Dunleavy, chief executive officer of OPT. “Development of this project draws on core strengths of both our companies and represents an important undertaking for commercializa-

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tion of the PowerBuoy technology.”

Victorian Wave Partners Ltd. is an Australian special purpose company owned by Ocean Power Technologies Australasia Pty Ltd. OPT is a leader in wave energy technology development. The company’s PowerBuoy wave generation technology uses a “smart,” ocean-going buoy to convert wave energy into low-cost, clean electricity. The buoy moves up and down with the rising and falling of waves. This mechanical energy drives an electrical generator, which transmits power to shore via an underwater cable. The system is electrically tuned on a wave-by-wave basis to maximize the amount of electricity produced.

Lockheed Martin takes a comprehensive approach to solving global energy and climate challenges, delivering solutions in the areas of energy efficiency, smart energy management, alternative power generation and climate monitoring. The company brings high-level capabilities in complex systems integration, project management, information technology, cyber security, and advanced manufacturing techniques to help address these challenges. Today, Lockheed Martin is partnering with customers and investing talent in clean, secure, and smart energy – enabling global security, a strong economic future, and climate protection for future generations.

Quantum Computer

COLLEGE PARK, Md., Mar. 5, 2014 – Lockheed Martin [NYSE: LMT] and the University of Maryland are partnering to develop an integrated quantum computing platform that has the potential to enhance fields ranging from drug discovery and communications to logistics.

The parties signed a memorandum of understanding today establishing the Quantum Engineering Center at the University of Maryland, College Park.

“Classical computing can only take us

so far,” said Dr. Ray O. Johnson, Lockheed Martin senior vice president and chief technology officer. “In the future, critical systems will become so complex that problems will take too long or become too expensive to solve using even our most powerful supercomputers. We believe the next computational revolution will stem from applied quantum science—a discipline that connects physics, information science, and engineering.”

Building on more than 60 years of collaboration, Lockheed Martin and the University of Maryland signed a formal strategic framework in 2010 to jointly pursue research and development projects and business opportunities. The Quantum Engineering Center is the most recent opportunity to push the boundaries of scientific discovery and innovation.



(From left to right) Dr. Patrick O’Shea, vice president and chief research officer at the University of Maryland, Dr. Ray O. Johnson, senior vice president and chief technology officer at Lockheed Martin and Dr. Mary Ann Rankin, senior vice president and provost at the University of Maryland signed a memorandum of understanding establishing the Quantum Engineering Center at the University of Maryland on March 5, 2014.

“By building on our world-class research expertise, the University of Maryland will transform the study of quantum mechanics into the practice of quantum engineering through this unique partnership with Lockheed Martin,” said Dr. Mary Ann Rankin, senior vice president and provost of the University of Maryland, College

Park. “Together, we will bring multidisciplinary methods to an area that has the potential to transform the lives of citizens around the globe.”

The initial goal of the Quantum Engineering Center is to demonstrate a quantum platform that features reliable, well-characterized operation without requiring a user to have a deep understanding of the internal workings of the system—just like conventional computers work today. To achieve this will require close cooperation between scientists and engineers.

“In the case of quantum components, it’s like we’re back in 1947 working with the first semiconductor transistors,” said Dr. Chris Monroe, Bice Zorn professor of physics at the University of Maryland. “We are talking about unusual systems— specially tuned laser and microwave fields trained with exquisite precision onto individual atoms suspended with electrical fields and immersed in a vacuum chamber a million times less dense than outer space. Each aspect is challenging in its own way, but we understand exactly how every piece works. Our focus now is integrating these systems to consistently and reliably work in harmony, much like engineering a complex aircraft, so that the device is more than just a sum of its parts.”

The F-16: Then and Now



Forty years and more than 4,500 planes later, the F-16 continues to build upon the fundamental strengths of its original design. With four decades of technological advancements and 138 different configurations, the famed F-16 fighter continues its reign as the world’s most successful 4th

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Generation multi-role fighter aircraft. There is, however, one thing that has remained constant over the years – the ongoing debate over the F-16’s real name. Some call it the ‘Viper.’ Others refer to it as the ‘Fighting Falcon.’ And, although they are both a fundamental part of the F-16’s iconic history, there is really only one nickname that stuck.

To dispel the rumors, the ‘Fighting Falcon’ is the official name granted by the Tactical Air Command (now the Air Combat Command). However, the name never really caught on, and the F-16 is more commonly referred to as the ‘Viper’ among pilots and maintainers.

For the first time in 2012, the well-known ‘Viper’ nickname became an official part of the F-16 program as the designation for the aircraft’s latest configuration – the F-16V.



In the simplest terms, the F-16V, or Viper, represents the next step in the evolution of the F-16. With new enhancements, including an active electronically scanned array (AESA) radar, an upgraded mission computer and architecture, and improvements to the cockpit, the F-16V configuration is an innovative solution for new jets and affordable retrofits for most earlier-model F-16s.

To understand how the Fighting Falcon has evolved over the past 40 years, we are taking a look back at how it all started:

Then:

The brainchild of a notorious group of

engineers and defense analysts known as the Lightweight Fighter Mafia, the F-16 was originally conceived in the early 1970s as a lightweight air-to-air day fighter. Their goal was to create a simpler and smaller alternative to the heavy and unmaneuverable fighter aircraft of the time. Their ideas challenged what everyone thought a fighter should look like and how it should fly.



Their unconventional designs were then translated by the engineers at our Fort Worth, Texas, plant (at the time General Dynamics) into the most advanced combat aircraft of the time. And, it took a village. The F-16 production team was truly remarkable, meeting every challenge and production schedule. The result:

- A smooth blended-wing body with extra lift and control
- A critical fly-by-wire system that kept the design stable, improved response time and increased its agility
- An enhanced cockpit – including a tilted back ejection seat, side-mounted throttle and control stick, head-up display, and bubble canopy – improved pilot survivability, visibility and control.



The F-16 has made history since it first rolled onto the flight line. In fact, the original F-16 prototype, or YF-16, was the first to combine all of these advanced technologies into one aircraft.

YF-16 Test Pilot Jim Rider described his favorite part of the YF-16 when it was first introduced: “It had the most remarkable bubble canopy – you could actually see,” he said. “It was like being out on the edge of a pole in a big clear bubble.”

And, at its peak in 1987, the F-16 production team in Fort Worth was also making history – producing 30 F-16s in just 30 days. These rapid fire deliveries are a testament to the teamwork and dedication that F-16 employees have shown across two generations and the past four decades.

Now:

Today’s Fighting Falcon is the cumulative result of the F-16 pilots’ combat experience and customer needs, all built on the fundamental strengths of the original Fighting Falcon design.



With 138 configurations to date, the F-16 has evolved from its prototype design to become the advanced 4th Generation fighter of choice for 28 customers worldwide. By consistently improving and incorporating new technologies into the cockpit, avionics, sensors and weapons, the aircraft has become more reliable, more maintainable and more supportable.

- Some of the F-16’s evolutions over the past four decades include:
- Increase in range and payload

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- Infrared sensors and laser targeting devices
- Enhanced survivability with more advanced warfare sensors and sophisticated decoys
- Increased engine thrust to retain aerodynamic performance
- Conformal fuel tanks
- All-glass cockpits with large color displays, hands-on throttle and sidestick switch controls, night vision goggle-compatible lighting, a color moving map, and a large head-up display
- Improved Datalinks, satellite phones and helmet-mounted cueing systems

The new Viper configuration provides additional features as part of an upgrade package that satisfy the customers' emerging requirements and better



prepare the F-16s to interoperate with 5th generation fighters, such as the F-35 and the F-22, including:

- An active electronically scanned array (AESA) radar
- Upgraded mission computer and architecture
- Updated avionics systems
- Embedded global positioning system
- Upgraded electronic warfare equipment

Positive History series; 2003 – 2006 by Ralph Tamm # 9 Ancients

It is interesting to note that the ancients had knowledge of our universe that was lost for almost two thousand years and was rediscovered by Copernicus (1473 – 1543) and those who followed him. As an example, the Sun-centered universe dated back to Pythagoras in the sixth century B.C. and was adopted by Aristarchus of Samos (310 – 230 BC), as reported by Archimedes, and was later upheld by Plato. Mathematical investigators, such as Pythagoras (569? – 500? BC), Zeno (495 – 435 BC) and Eudoxus (408 – 355 BC) dealt with numbers and set the stage for modern mathematics. Archimedes (290 – 211 BC), a Greek, was 2nd only to Newton in scientific accomplishments. He developed the concept of the lever (such as the screw) from his work in mathematics – Geometry. And, he anticipated the Calculus discovered by Newton many centuries later. He created many unique mechanical devices from this knowledge indicating he could convert his ideas and theories into working realities - a master engineer. Hipparchus, (147 – 127 B.C.) was able to locate his position on earth in both latitude and longitude that indicated he knew the Earth was close to being spherical and its approximate size. Aristotle (384 – 322 B.C.) created the Logic. It is intuitively obvious that knowledge builds on knowledge. Who knows what the present world would be like if the Dark Ages could have been avoided.

Ref: Britannica Encyclopedia 2003 Deluxe Edition CD-ROM, and Men of Mathematics by E. T. Bell

Carrying Air Mobility into the Future

The very first Lockheed aircraft, a wood and muslin-covered seaplane, was designed to carry passengers. Over the next 100 years, through aircraft such as the Electra, Clipper, Lode-star, Mars, Constellation, Hercu-

les, StarLifter, TriStar, and Galaxy, Lockheed Martin built a long and continuous legacy of aircraft designed to move important people, equipment, or more critically, mountains of relief supplies after a disaster from Point A to Point B as quickly as possible. This air mobility legacy continues today through the development and production of the latest Hercules variant, the C-130J, and the completely upgraded C-5M. As more and more aircraft fill the sky, the aircraft have to be controlled and airspace deconflicted—the number of takeoffs should always equal the number of landings. And Lockheed Martin is also a leader in air traffic control. Today, our software helps millions of people reach their destinations every year, touching about 60 percent of the world's total air traffic. As we look at what's next, the future looks bright. Lean and Green Leaner defense budgets are driving the need for "greener" tankers, and strategic and tactical airlifters. In 2010 alone, the U.S. Air Force spent \$10 billion in fuel, with mobility aircraft being the biggest gas guzzler. "Saving even one percent is a huge amount of fuel and a big reduction in cost," said Rick Hooker, Skunk Works® manager of the Air Force Research Laboratory's Revolutionary Configuration for Energy Efficiency (RCEE) program. Current efforts such as the RCEE program are seeking to identify the highest fuel saving technologies and develop their maturation plans for the 2035 timeframe. "We can improve mobility capabilities with 70 percent less fuel than a C-17," says Hooker. "The cornerstones of our Hybrid Wing Body (HWB) concept are efficiency, affordability, and compatibility. Designed with an eye to the future, the HWB program would save 400 million gallons of fuel per year and would be capable of dual use as both an efficient transport and tanker." While it's important to look ahead, there are opportunities that are already being implemented today. For instance, the C-130's fuel efficiency can be boosted thanks to lightweight devices called microvanes, which reduce the air-

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craft's drag. These miniature strake-like devices are located on each side of the aircraft's aft fuselage near the cargo ramp door and horizontal tail. "Both legacy and C-130J operators can benefit because the shape of the back end of the aircraft hasn't changed," said Edward DiGirolamo, Skunk Works research engineering manager. "Microvanes can be installed on the production line or as an easy retrofit with no structural impact. They are relatively inexpensive and offer a good payback." The greening of engines also appears to be paying back in dividends. "We constantly work with major engine companies to ensure that our designs include the latest engine technologies and concepts for greater efficiency and reduced fuel burn," noted DiGirolamo. He explained that those technologies include engines with higher pressure ratios for engine thermal efficiency as well as higher bypass ratios for propulsive efficiency. The next generation engines even promise to reduce fuel burn by as much as 35 percent for the same amount of thrust. No Roads? No Problem

Even the best planes need paved runways to take off and land to make deliveries. When that infrastructure is not available, many opt for a helicopter. However, a helicopter also comes with certain limitations, such as limited range and high operating costs. Currently, more than two-thirds of the world's land area and more than half the world's population have no direct access to paved roads. As you move farther away from infrastructure, cost, time and the safety of transport becomes more of a challenge. "Hybrid aircraft allow access virtually anywhere - water or land, in normal flying weather conditions - without infrastructure or manpower and could deliver larger and outsized payloads," explained Dr. Robert Boyd, manager of the Skunk Works Hybrid Airship program. How much larger of a payload you ask? Try a stadium-sized craft that could carry as much as 500

tons—more than any other air vehicle in existence. This type of capability would grant access into hard-to-reach areas to enable lifesaving response in the early aftermath of a calamity. It could also carry large quantities of commercial cargo, giving infrastructure-poor areas a chance at success in the global economy. When you don't have stadium-sized cargo and need to support small units of dispersed soldiers, a flexible and autonomous unmanned transport option may be the best solution. Lockheed Martin has pioneered the application of unmanned vehicle technology for the U.S. Marine Corps in Afghanistan since 2011 with the K-MAX cargo helicopter, which helps protect troops from IEDs by reducing the need for truck convoys. "Beyond that, we're looking at next generation VTOL delivery con-

be used for multiple roles and missions, determined by the type of cargo pod to be transported. Moving Flights from A to B
Even the most advanced aircraft need help completing their journeys efficiently. Air traffic controllers use complex systems to keep aircraft safely separated and on efficient flight paths. However, much of today's air travel is controlled by decades old systems that weren't designed to efficiently handle the amount of air traffic today's interconnected world produces. Lockheed Martin is already delivering the next generation of air traffic management systems that will help aircraft fly more fuel efficient routes and move through busy airspace more effectively. Ultimately these new systems will improve air travel for millions of people. "Imagine you received a call before



cepts," said Kevin Renshaw manager of the Aerial Reconfigurable Embedded Systems (ARES) program. ARES would allow cargo to be carried at higher speeds in multi-purpose modular packages while being protected from the effects of wind and elements in flight. The compact system would also enable operations from smaller landing zones than an open rotor helicopter. "The cargo module is just one application of the system, but it could support rapid resupply of dispersed units in the field," added Renshaw. And in an age where multifunctionality and punctuality are key, the modular nature of the system would allow a single VTOL UAV lifter to

your commute and learned that if you left five minutes later and took a different road, you'd miss traffic, arrive ahead of time and find a parking space right next to your office door," said Kevin Hightower, chief technology officer of Lockheed Martin's Transportation Solutions business. "We're working on solutions that will enable controllers to help airlines do the same with flights in the air and on the ground at airports."

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MARCH, 2014

Activity Calendar

- **LMMAR Executive Board Meeting.** First Monday of each month unless holiday conflict, then second Monday. 9:30 a.m. Bldg. 157-Satellite Room (off the cafeteria).
 - **LMMAR Newsletter Mailing Session.** Volunteers needed. Second Thursday of each month. 9:30 a.m. Bldg. 157-Litrium. Contact Norm Dhom (408) 732-2742.
 - **LMMAR Bridge Card Players.** Join the fun! Every Tuesday and Thursday, 12:00 noon at the Willow Park Condominiums located at the NE corner of Moffet Blvd. and Middlefield Road in Mountain View. Entrance is from Moffet Blvd. Contact Dave Himmelblau, 'phone No. 650 968-1121.
 - **LMMAR Luncheon.** April 25, 2014 at Michael's at Shoreline in Mt. View. Contact Lucille Wilson at 408.225.9566
 - **LMMAR Barbecue.** August (TBD) at Central Park In Santa Clara. Contact Lucille Wilson at 408.225.9566
 - **LMMAR Luncheon.** October 31, 2014 at Michael's at Shoreline in Mt. View. Contact Lucille Wilson at 408.225.9566
 - **LMMAR Luncheon.** December 5, 2014 at Michael's at Shoreline in Mt. View. Contact Lucille Wilson at 408.225.9566
 - **Lockheed Martin Blood Bank.** Second Wednesday of each month. 8:00 a.m. - 3:00 p.m. Bldg. 163. LMMAR Contact Norm Dhom (408) 732-2742.
 - **Lockheed Martin Retirees Investment Group (LMRIG).** Meets last Thursday of each month, 1:00-2:00 p.m. in B163 at the corner of J Street and 1st Ave. (Employee Connection Building). Dues are \$2. Contact Don Kinell (650) 948-1520 or Martin Abelow (408) 253-6924. Join us for lunch in the B-157 cafeteria prior to the meeting between 11:40-12:40.
- For your financial needs, please contact Star One Credit Union at www.starone.org or (866) 543-5202 toll free.

LMMAR NEWSLETTER

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