

# SOFTWARE and HARDWARE ENGINEERING SOLUTIONS!



## 309TH SOFTWARE MAINTENANCE GROUP

# A World-Class CMMI<sup>®</sup> Level 5 Organization

## WORLD-CLASS CAPABILITY

The 309th Software Maintenance Group (309 SMXG) at Hill Air Force Base is a recognized world leader in "cradle-to-grave" systems support, encompassing software engineering, hardware engineering, program management, data management, consulting, and more.

## WORLD-CLASS EXPERIENCE

With over two decades of expertise in weapons system and support software, hardware, and systems engineering, 309 SMXG has the right people, technology, and processes to support myriad systems in any lifecycle phase.

## WORLD-CLASS RECOGNITION

In 1998 and again in 2006, 309 SMXG achieved Level 5 on the Software Engineering Institute's Software Capability Maturity Model<sup>®</sup> and Capability Maturity Model Integration<sup>®</sup>. We not only hold the DoD record as the longest continuous Level 5 organic group, but we are also the only DoD Level 5 organization to be AS9100 registered!

AND WE ARE NOT STOPPING THERE!

*"The engineers at Hill AFB are considered heroes back in Washington, D. C."*

*Brig Gen David A. Brubaker  
Deputy Director, Air National Guard*





## How a Level 5 Benefits Our Customers

- The right product the first time.
- Accurate estimates for cost and schedule
- Lower overall costs
- Early risk mitigation
- Accurate and timely status reporting
- High-quality and reliable software products
- Excellent response time to customer needs

The group's Vision Statement encompasses our view on process improvement:

*"We are the team of choice providing exceptional weapons systems software and related hardware solutions and technology adoption expertise to enhance our nation's defense.*

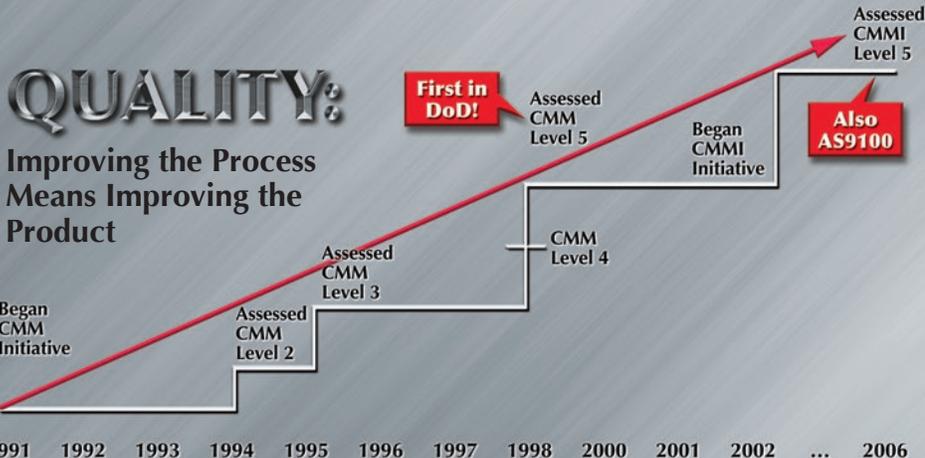
*Our continually improving processes, skills, and business practices ensure a stable, productive, and technically challenging environment that results in high customer satisfaction."*

### CMMI LEVEL 5 RATING\*

The quality of the 309th Software Maintenance Group's systems, software, and hardware engineering services is recognized worldwide. In 1998, the Group achieved the coveted status of Level 5 on the Software Engineering Institute's Software Capability Maturity Model®, the first government organization to do so. In 2006, we exceeded this accomplishment by achieving Level 5 on the new Capability Maturity Model Integration®—the CMMI®. Less than one month after reaching this milestone, we added AS9100 registration (ISO9001) to our list of achievements, along with our entire Maintenance Wing. The group devoted many years to process improvement in the pursuit of excellence, using the SW-CMM, ISO (International Organization for Standardization) 9000, and best practices from business. Our focus is to do the right things for the right reasons. We pride ourselves on our continual process improvements, which enable us to provide quality products at the best value.

This Level 5 achievement ranks 309 SMXG in the top 20 percent of all software engineering companies in the world, in the top FOUR percent of all organic government organizations, and establishes the Group as the longest running Level 5 organic team in the Department of Defense and the only organic DoD team to have superior recognition in both CMMI® and AS9100 .

The group has devoted nearly two decades to process improvement in the pursuit of excellence, employing the best practices of successful government and business groups. We have also pioneered advanced practices such as the Personal and Team Software Process<sup>SM</sup>. Our focus is to do the right things for the right reasons. We pride ourselves on our continual process improvements, which enable us to provide quality products, on schedule, at the best value.



**QUALITY:**  
Improving the Process Means Improving the Product

\* Detailed information on CMM and CMMI can be found on SEI<sup>SM</sup> Web site: <http://www.sei.cmu.edu>

® Software Capability Maturity Model, SW-CMM, Capability Maturity Model, CMM, and CMMI are registered in the U.S. Patent and Trademark Office by Carnegie Mellon University.

<sup>SM</sup> SEI and CMM Integration are service marks of Carnegie Mellon University.



*"The performance of this software development team...has been nothing short of miraculous. This team is a model for the Air Force and has our highest recommendation."*

**Col Frank E. Anderson**  
**Commander, 301st Maintenance Group**



**SOFTWARE ENGINEERING**

The group's software engineering solutions include development and maintenance of embedded systems, avionics, test equipment, PC-based systems, and system support applications. We develop and maintain software for a variety of systems, using both legacy and state-of-the-art languages. Our software solutions consist of complete system support during the entire development life-cycle to include requirements definition, software design, implementation, test, and delivery. In addition to our nationally recognized software development processes, our technical expertise, facilities, tools, and pro-active management approach make us the right solution to meet the needs of any software project.



**SYSTEMS ENGINEERING**

Systems engineering is a cornerstone of our group. Our highly trained personnel use proven processes to fully integrate the hardware and software architecture, interfaces, components, and data into systems that meet the most demanding needs of our customers. Our systems engineering talent enables us to provide state-of-the-art, open architecture hardware and software products for relatively small to multimillion-dollar programs. With a proven track record producing complex, integrated hardware and software solutions, we stand ready to provide you the systems engineering expertise necessary to meet or exceed your requirements.



**WEB-BASED APPLICATIONS**

We have design, development, and maintenance professionals with vast experience in dynamic, database-backed Web sites for both MS Windows and UNIX servers. Using state-of-the-art equipment and the latest development tools, we build modern Web sites with eye-catching graphics and a back-end system that will handle any data management requirement. We have expertise in using modern development platforms, like Lotus Notes/Domino (Administration & Development), ASP, Cold-Fusion, Perl, and JavaScript, and can easily integrate complex databases using Microsoft SQL Server, Microsoft Access, or Oracle.



**SOFTWARE CONFIGURATION MANAGEMENT (SCM)**

We consistently receive high praise from customers who look to our world-class software configuration management expertise to ensure the right software is delivered to the right user at the right time. Configuration Management is staffed with experienced personnel to define, implement, and manage product lifecycles by planning, identifying, controlling, auditing, and improving the elements by which they are created. Augmented with the latest tools and techniques, our SCM staff stands ready to ensure your product is carefully developed, tracked, stored, and provided to you as a high-quality, dependable item.



## HARDWARE ENGINEERING

We provide state-of-the-art hardware solutions, using the latest instrumentation, interface technology, and reverse engineering techniques. Products developed include production systems as well as conceptual and prototype designs. We use sound engineering principles to provide superior support from requirements definition through deployment and maintenance. Being a government agency, we can understand the need to produce newer and better systems at lower cost. We fulfill the need to support system upgrades and replacements that meet DoD standards to include Form, Fit and Function requirements, with high reliability and supportability.



## TECHNOLOGY UPGRADES

The 309th Software Maintenance Group can provide upgrades to essentially any legacy system. We can help bring outdated legacy systems up to modern commercial off-the-shelf (COTS) or custom state-of-the-art technologies. We are leaders in designing and implementing technology upgrades for operational and logistics systems, computer platforms, test systems, and in re-hosting their associated programs. Whether it is development on a new processing platform or a complete system upgrade, our broad engineering experience and focus on quality ensures customers have the ability to maintain the edge in system efficiency and product excellence in a radically changing environment.



## SIMULATION AND EMULATION

We successfully design, implement, test and maintain software and hardware simulators, emulators and modeling systems for a full range of aerospace systems and technologies: aircraft; space; missiles; radar; air defense systems; command, control, and communications systems and electronic countermeasures. Simulators and modeling systems allow realistic representation or modeling of actual systems. Emulators allow programs to be run in place of the real assets or in concert with real hardware. By working closely with the customer throughout the project we ensure that the final product fully meets customer defined requirements.



## CONSULTING SERVICES

In the pursuit to make systems and software better, faster, and cheaper, the group's Software Technology Support Center provides a venue to share the technology that enables the 309 SMXG's success. This venue includes consulting services, the Systems and Software Technology Conference, and *CrossTalk, the Journal of Defense Software Engineering*. Our consultants train, mentor, and assess numerous organizations, offering consulting and training for cutting-edge process improvement techniques, such as the CMMI<sup>®</sup>, SCAMPI<sup>SM</sup>, and TSP<sup>SM</sup>. We also provide software acquisition assistance in areas such as cost analysis, project management, software measurement, and software quality.

<sup>SM</sup> TSP is a service marks of Carnegie Mellon University.

<sup>®</sup> SA-CMM is registered in the U.S. Patent and Trademark Office by Carnegie Mellon University

<sup>SM</sup> SCAMPI is a service mark of Carnegie Mellon University.

*"A model organization by which I would compare all other suppliers."*

Jon W. Shively

Chief, F-16 Logistics Operations Group



...OF QUALITY PRODUCTS AND SERVICES



**EXPEDITIONARY FIGHTING VEHICLE (EFV)**

The 309th Software Maintenance Group has teamed up with General Dynamics to support the Marine Corp EFV. Our team utilizes state-of-the-art software development methods and applies the principles of Team Software Process (TSP) and Personal Software Process (PSP). We are developing System Integration Laboratories to accomplish our systems level testing. We strive to consistently produce quality products and services on-time, at or below costs, by implementing the principles of CMML.



**OPERATIONAL FLIGHT PROGRAM (OFP)**

The OFP group has been providing operational capability upgrades for the F-16 Fighting Falcon for 25 years. Our engineers design and implement upgrades to avionic software, integrating capabilities such as advanced weapons, data link communications, precision navigation systems, and advanced targeting pods. These periodic upgrades greatly enhance our war-fighter capability and survivability and quality of our products result in consistent customer satisfaction. Our mission is to contribute to the long-term viability of the F-16 aircraft.



**AIR FORCE TOTAL OWNERSHIP COST (AFTOC)**

The Air Force Total Ownership Cost (AFTOC) is a cost reporting system that integrates raw data from Air Force Standard accounting, budget, logistics, and personnel systems to produce information about the cost of ownership of Air Force weapon systems and infrastructure. It collects, and aggregates data for analysis, provides a single source of reliable information at the weapon system or infrastructure level, and develops unique information from several functional data systems.



**WEAPONS SYSTEMS MISSION PLANNING**

Since 1989, we have enhanced the mission planning process through innovative development and sustainment of over 30 Air Force mission planning products. These products are necessary components of both weapon systems (such as the F-16, F-117, A/OA-10, B-52, B-2, and the B-1B) and the platforms they operate on, including the Mission Planning System (MPS), Portable Flight Planning System (PFPS) and the Joint Mission Planning System (JMPS). Our contributions continue to significantly improve mission planning.



**AUTOMATIC TEST SYSTEMS (ATS)**

We provide expertise in producing and maintaining customized and COTS-based automatic test systems. Proven F-16 microwave & analog test systems have been fielded with minimal re-host cost and maximum capability. We team with various contractors on systems, such as the Ground Minuteman Automatic Test System (GMATS) and the Digital Analog Test System (DATS). We also support electrical check-out of aircraft wiring using DIT-MCO, FACT and Eclipse test equipment. We are ready to solve your most intricate test issues.



**MILSTAR – SPACE COMMUNICATION AND WARNING SYSTEM**

We provide software maintenance and capability enhancements for weapons systems that support Air Force Space Command, North American Aerospace Defense Command and U.S. Northern Command operators. Collocated with our customers since 1993, we are fully integrated into internal customer teams and processes. Delivered ahead of schedule, our first software maintenance release for the Milstar satellite Air Force Command Post Terminal had the most successful "sell-off" in program history!



### **COMMON MODULAR ENVIRONMENT (COMET)**

COMET is a complete user-friendly environment for developing and testing software used in real-time embedded computer systems, such as the F-16. COMET supports all phases of the software development and test process. COMET is a modular design with COTS and custom hardware and software. The tremendous variety of COTS VME products available allows us to develop COMET test stands to support embedded computer systems in airplanes, ships, and vehicles.



### **RANGE SUPPORT**

We provide hardware and software support for twelve threat simulator systems, two bomb scoring systems, and Air Combat Maneuvering Instrumentation pods. We support field users and address issues from corrosion of equipment to hardware and software modifications for the supported systems. The equipment supported is located worldwide and is used by all U.S. Military Services, NATO, and FMS countries to train flight crews in a realistic electronic combat range environment for tactics development and testing.



### **COMMON AIRCRAFT PORTABLE REPROGRAMMING EQUIPMENT (CAPRE)**

The 309th Software Maintenance Group is responsible for the development and integration of CAPRE Aircraft Adapter Groups. CAPRE uses COTS laptops to reprogram various aircraft avionics computers and download Operational Flight Programs and Mission Data Files. We develop CAPRE hardware and software to provide a universal reprogramming capability for many weapons systems. CAPRE provides the ability to readily adapt to rapidly changing computer technologies, resulting in significant cost savings to the Air Force.



### **GROUND THEATER AIR CONTROL SYSTEM (GTACS)**

The 309th Software Maintenance Group maintains complex software for GTACS operations modules. These are ground-based computer network systems that coordinate radar and communication data signals. GTACS modules plan, direct, and control air operations and coordinate with ground, naval, and coalition forces. Our expertise in radar and data-link messaging provides vital capabilities to this system in support of crucial missions, enforcement of no-fly zones, and homeland defense.



### **HUMAN ENGINEERING DEVELOPMENT STATION (HEDS)**

The HEDS Group designs, implements and maintains all hardware and software required for HEDS, a system of rapid prototype flight simulators that allows pilots to 'test-fly' and evaluate Operational Flight Program modifications. They range in scale from laptop systems to state-of-the-art, full scale/high-fidelity dome simulators with 360 degrees field-of-view. HEDS is also a pilot familiarization tool for fielded OFPs. Use of the HEDS system efficiently maximizes pilot safety and weapon system performance.



### **SOFTWARE CONTROL CENTER (SCC)**

The SCC is the single receiving, storage, and distribution point for all Mission Critical Computer Resources (MCCR) software managed at Hill AFB. The center provides service for all electronic media and documentation as well as direct support to worldwide DoD agencies and Foreign Military Sales (FMS) customers. The SCC uses the Automated Computer Program Identification System (ACPINS) to manage program data. The center reproduces/distributes such media as CDs, diskettes, PCMCIA cards, etc.

# BUILDING SOLUTIONS FOR THE SYSTEMS OF THE PAST, PRESENT, AND FUTURE!



*309 SMXG is a highly successful organization with a proven track record. We can help you get more systems engineering support for your money.*

*As the first and longest duration CMM/CMMI Level 5 company in the Department of Defense, we are experts at providing low-cost engineering solutions and high-quality products!*

*We are customer and user oriented!*

*We are experts in applying DoD regulations and standards!*

## WE CAN SUPPORT YOUR DEVELOPMENT AND SUSTAINMENT NEEDS...



Software Engineering



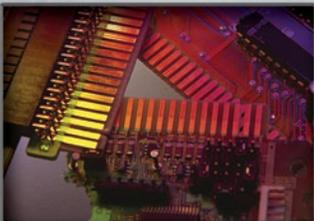
Systems Engineering



Web-Based Design



Software Configuration Management



Hardware Engineering



Technology Updates



Simulation and Emulation



Consulting Services

## ON A WIDE RANGE OF SYSTEMS AND PRODUCTS...

- Avionics
- Automatic Test Equipment
- Electronics
- C<sup>3</sup>I
- Weapons
- Mission Planning
- Web-Based Products
- Space and Missile Systems
- Ground Support Equipment

**...AND MANY MORE!**

## PLEASE CONTACT US TODAY!

DSN: 777-2615

Commercial: (801) 777-2615

Email: [309SMXG.CDInfo@hill.af.mil](mailto:309SMXG.CDInfo@hill.af.mil)

or visit our Web site:

[www.mas.hill.af.mil](http://www.mas.hill.af.mil)

## INTERESTED IN EMPLOYMENT OPPORTUNITIES THAT FOCUS ON QUALITY OF LIFE?

Contact us directly, or go to our Web site and look under Employment Opportunities.