

# ELECTRICAL AND ELECTRONIC DESIGN SERVICES FROM INCEPTION TO PRODUCTION

## ABOUT US

MAPC is an employee owned research and development company best known for its advanced hydrofoil hulls, unmanned marine and land vehicles, and motion compensated land, air, and marine vehicle launch and recovery systems.

We offer a broad range of electrical design services. We can rapidly design and deliver a few pieces for your tightly scheduled prototype project or provide you with a complete engineered production product manufactured with aerospace quality controls.



## CUSTOM DIGITAL AND ANALOG CIRCUIT BOARD DESIGN

- Electromechanical Vehicle Control Systems and Motion Compensated Platforms
- Embedded Processors, Data Acquisition, Mechanical and Electrical Sensors
- Wired and Wireless Communications



MAPC designed a Common Unmanned Surface Vessel (*left*), including the integration of the computers, communications, sensors, displays, & indicators, helm control, engine control, radar and sensors. For the U.S. Army, MAPC designed an electromechanical Track tensioner for the M2 Bradley infantry vehicle to maximize tread life (*right*).

## INTEGRATED SEMI-CUSTOM POWER, DIGITAL, AND ANALOG ELECTRONICS

- Instrumentation and Sensor Systems and Field Testing
- Ethernet and Fiber Optic Communications
- Autonomous and Unmanned Vehicle Navigation and Control
- Modular Embedded Computers
- AC and DC Power Conversion and Electric Power Transmission
- Land and Sea Vehicle Electric Systems and Hybrid Electric Drives

# ELECTRICAL AND ELECTRONIC DESIGN SERVICES

## INTEGRATED SEMI-CUSTOM POWER, DIGITAL, AND ANALOG ELECTRONICS CONT.



On the LCS2, MAPC installed Watercraft Launch and Recover Systems (*center*) which feature our ability to engineer the computerized control of a Twin Boom Extensible Crane and Motion Compensated Hydraulic Crane.

## PROOF OF CONCEPT DESIGNS AND RAPID PROTOTYPING

- Rapid Prototyping
- Field Testing and Field Test Support



MAPC can provide data loggers, sensor, power equipment, instruments, cabling and control systems for deep-ocean seafloor applications. Sensors on our Mercury prototype (*left*) monitored performance at 2km depth where pressures exceed 2200psi and transmitted the collected data to the surface by acoustic modem.

## TRANSITIONING, MANUFACTURING, & INTEGRATION

- MTBF Failure Rate Prediction, Maintenance Intervals and Procedures
- Quality System for Full Design Qualification and Testing to Military, Aerospace, and other Specifications
- Subsystem Integration
- Manufacturing Quality Control to AS9100 Standards



Over 750 Mil-Spec cables are manufactured at MAPC (*left*). Our electromechanical flight deck safety system and shaft turning gear are used by the Navy's soon-to-be released DDG-1000 Zumwalt Class Destroyer (*right*).