Why We Chose EvoLucid RTOS Over The Competitive Offerings

The five groups which both benefit from, and contribute to, NASA Center for Space Microelectronics Technology (CSMT) are tasked with the pioneering work of developing innovative, high-risk, high-payoff concepts and devices that hold the potential to enable new space missions or to enhance current and planned space missions.

In today's constrained budget environment, large space missions can no longer be afforded. At the Jet Propulsion Laboratory (the head office of CSMT), planners have adjusted the size of missions and spacecraft to be more moderate, primarily by taking more risks and asking the spacecraft to do less. In the future, they will be using very advanced technology in order to reduce the spacecraft size even more, while retaining the functionality of today's spacecraft. The spacecraft of the future will provide world-class science in focused areas for an affordable price, making it possible for many of these "microspacecraft" to be launched, perhaps as many as one per month.

Even in the rare occasion when a manned mission is unavoidable (extended timeframes and exigencies, for example, the scientific exploration of Mars), the need for technology to do more with less and for lower cost, while maintaining high levels of crew safety and comfort, has led CSMT to expand its search to top-tier, small companies via the SBIR and STTR technology outreach programs.

Glacier Peak Technology LLC, with its barrier-breaking EvoLucid software platform, is exactly the type of technology NASA CSMT is looking for.

While massively-parallel supercomputers such as the Hewlett-Packard Exemplar system process vast quantities of data very quickly at ground installations, often decisions need to be made instantaneously at vast distances – a situation not well-suited for MPP devices on the ground.

For these reasons, NASA CSMT has committed a great deal of time and funding towards the creation of electronic embedded processors capable of performing lightning-fast calculation in severely resource-constrained, often hostile environments.

EvoLucid is the only technological platform we evaluated which can respond to stimuli with exact pattern matches in near real-time, but without requiring the large amounts of both power and thermal heat-sinking used by the classical Neural Network model pattern matchers. EvoLucid will provide CSMT with a targeted, compact and energy efficient real-time data modeler, a capable decision engine, and a control and diagnostic system all combined together. There is literally no other platform that NASA has yet evaluated which can perform all these tasks without extensive re-purposing – and still maintain the cost-effective COTS-style design paradigm to which NASA has committed since 2002.

We are very pleased to be working with Glacier Peak Technology LLC and are looking forward to the successful deployment of many EvoLucid core entities in all five of the major CSMT research and deployment groups.