



Re:Vision:

A New Paradigm For Mid-Lifecycle Design Changes

Conquering Complexity[®]

For decades, the general belief was that the replacement of key components during the mid-lifecycle design refresh of complex electromechanical systems was simply too costly and burdensome — and that any changes in product design would simply need to wait until the next generation.

Today, technology is simply changing too fast to wait until the next generation of a product to add new capabilities and to risk losing a competitive edge or, worse yet, to risk the introduction of a new product that is already obsolete. Fortunately, there are other options. *With the right alignment of partners and suppliers, a mid-lifecycle component change can actually provide both greater performance capabilities and cost savings.*

Barriers to Change



There are many concerns that have led to the belief that making mid-lifecycle component changes is too difficult, including:

1 BUDGET CONCERNS

Because budgets are already in place when the product reaches the midpoint of the design process, concerns arise about the costs of replacing a key component. After all, it seems that the cost of replacing a key component is just more costly than keeping the existing component.

2 TIMING CONCERNS

Concerns about timing also arise with the prospect of a mid-lifecycle component change — including how it will contribute to project scope creep and prevent meeting tight deadlines.

3 SOFTWARE ISSUES

Will there be a need for changes in protocol in order to communicate with the new component?

4 COMPATIBILITY ISSUES

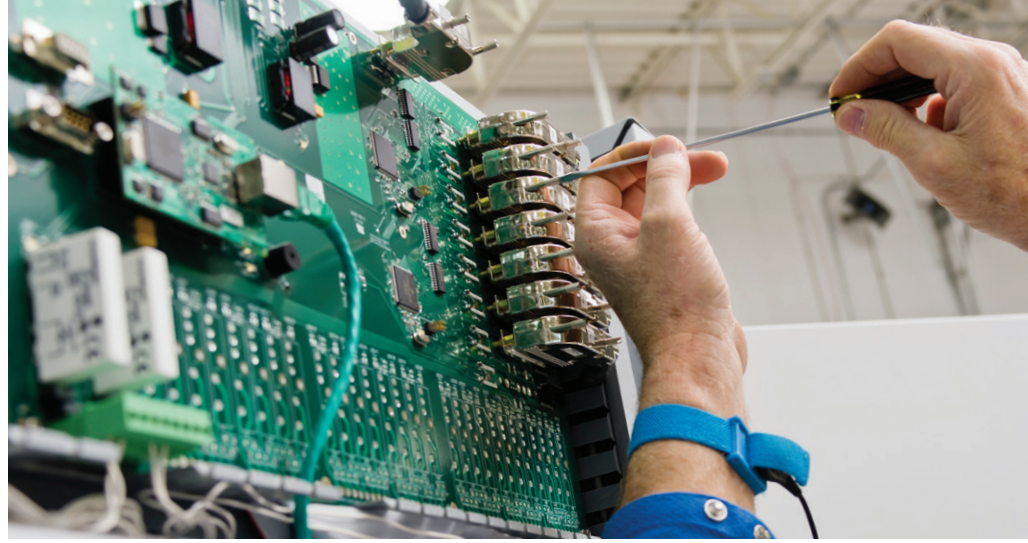
Hardware size might not be suitable for integration into the system, power and performance of the new component may be different, or some of the inputs and outputs may be different or not available.



Barriers to Change (cont.)

The defense and aerospace markets, in particular, are often moving on a fast track to meet aggressive production schedules and, as a result, are reluctant to make unscheduled changes. They have many balls in the air, which makes it difficult for them to put on the brakes and deviate from the original plan on the way to preproduction prototypes, and, eventually, full-on production. In fact, until recently, most design projects simply did not pivot in the middle of the process unless there was a showstopper preventing forward progress.

Software requalification for these markets is a very regimented, time-intensive, and costly process, so they are reluctant to risk the need for requalification. In the event of a component design change, there is a risk of noncompliance with original specifications.



When and Why a Mid-lifecycle Component Change Makes Sense

Advances in design and integration techniques are changing everything. Today, there are a number of scenarios in which implementation of a mid-lifecycle design change makes sense. For example, obsolescence or end of life (EOL) component changes continue to represent a daunting challenge that must be resolved quickly.

In fact, with the speed of changes in technology, there are a number of downsides to waiting for the next generation of a product to make critical design changes, including the risk of losing a competitive edge. Worse yet, it could mean that by the time the product is in the manufacturing stage, it is already out of date. It often happens that a competitor introduces new capabilities before a product reaches the manufacturing stage. In that event, it will be necessary to make a counter move to stay competitive by integrating a new component with leading-edge technology at a midpoint in the design cycle.

The automotive industry and other industries now consider mid-lifecycle design changes to be a best practice. Government programs, too, often have a refresh built in to the process at the midpoint, which involves tweaking the baseline product without necessarily embarking on a completely new design initiative.

Making a smart change in midstream — switching out to a new multifunctional component, for example — can add efficiencies that will provide cost reductions in the bill of materials and help conserve energy by taking the place of multiple components. And, with the right switch to the right new component, benefits include improvements in performance and, ideally, the flexibility to enable future enhancements with ease.





A Partnership with Sparton

The Navigation and Exploration Division of Sparton Corporation is a one-stop supplier for the design, engineering and manufacture of complex electronics, electromechanical products and sub-assemblies. As such, we are able to provide our customers with the flexibility needed to optimize mid-lifecycle design changes and leverage them to deliver additional capabilities, greater performance, and energy conservation.

We are the ideal partner to turn to for mid-lifecycle component changes, because of our ability to provide the output requirements the customer needs and additional feature sets that result in an end product that is superior, both financially and functionally. We also offer a flexible software interface that enables a great deal of customization with the ability to emulate the protocol used by the customer, making it easier to adopt our component. And, for defense contractors, that flexibility makes cost-effective adoption of our technologies possible, minimizing the scope of requalification.

Conclusion

Today, more than ever, designers of electromechanical systems are recognizing the importance of building a period of adjustment into the design process that can go a long way to keeping products competitive in the marketplace. By planning for a mid-lifecycle design refresh and choosing a component partner that can facilitate optimum integration, they can realize energy and cost savings while achieving additional capabilities and new levels of performance.

Optimizing outcomes with a strategic component partner

Planning ahead for integration issues, engaging with the right strategic component partner from the beginning of the product development cycle and leveraging that partner as part of the design team can yield a host of benefits. The product benefits from proper integration by enabling a full suite of features, while the manufacturer is able to validate the cost of product and integration beyond the singular dimension of the product price itself.

Not all component partners are created equal. The right strategic component partner should offer services that go above and beyond the norm. For example, the component partner should have the ability to:

- Step up to help mitigate risk through consultative services — ideally, for free or a nominal cost in good faith.
- Understand the integration needs and complexities of sensitive electromechanical systems to ensure performance.
- Provide responsive, full-service engineering support.
- Help the product engineering team move the design forward.

Because of the complex integration needs of these systems, the component partner should offer a comprehensive menu of value-added services, including testing and qualification, engineering reevaluation, and calibration and environmental services.



About Sparton Corporation

Sparton Corporation (NYSE:SPA), now in its 113th year, is a provider of complex and sophisticated electromechanical devices. We use our Sparton Production System (SPS) to produce breakthrough products and address complex manufacturing challenges — faster and more cost effectively. We have experience in many industries, including medical and biotechnology, industrial and commercial, and military and aerospace. Headquartered in Schaumburg, IL, Sparton has design centers and manufacturing facilities worldwide. For more information, visit www.sparton.com.



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