

## Custom Rugged Computer Quiz

by William Finn, AMREL Senior Copywriter & Editor

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At AMREL, we see a lot of other people's mistakes. Clients frequently come in with tales of woe, asking us to clean up messes made by them or their previous customization company. Some errors are specific to the customization process; others are true for rugged computers in general.

Of course, we're happy for the business, but we think a little bit of knowledge can save everyone a lot of headaches. So, before you begin your journey through customization, take this short test to see if you're ready.

### Part One: True or False

- 1) *Mean Time Between Failures (MTBF) is a valid way of comparing quality of parts from different companies.*

**False.** Companies have different ways of determining MTBF, so this figure is anything but standardized. The MTBF is a critical piece of information in the procurement process, so some people confuse regulatory documentation with reality.

- 2) *Customizations must be done by third parties.*

**False.** This mistaken assumption is part of a larger category we call "Ask for the moon." Always ask for the impossible, because you don't know what's possible. Many people don't know that manufacturers, like AMREL, will do factory customization. These solutions tend to be better integrated, with fewer performance and conflict problems than those done by third parties.

- 3) *The manufacturer's warranty never includes customization.*

**False.** Don't waste time getting ping-ponged between two parties who claim that it's the other guy's fault. Get one warranty that covers everything. Again, ask for the moon.

- 4) *Low-volume customizations are too expensive to be practical.*

**False.** We're so accustomed to sticker shock at Non-Recurring Engineering (NRE) costs that we assume that they always make short production runs too expensive. True customization companies compete on NRE. Ask around until you find the specialist who will do your customization for a reasonable fee.

- 5) *The warranty and purchase price reflect the true cost of the computer.*

**False.** Venture Development Corporation did a highly publicized white paper demonstrating that the hardware costs of a computer are only a fraction of



the total. Training, operational, and downtime costs are some of the expenses for which you have to plan.

One helpful figure to know for budgeting is Mean Time To Repair (MTTR). Some ruggedized computers are built modularly, so the time and cost of repairs are minimized.

- 6) *A signed obsolescence agreement with your vendor ends your worries about End of Life issues.*

**False.** What if your vendor is a flake? What if he goes out of business? What if the vendors who supply him go out of business? The Department of Defense's (DoD) "Guidebook of Best Practices and Tools Implementing a Diminishing Manufacturing Sources and Material Shortages (DMSMS) Management Program" recommends that procurement officers perform basic market research on prospective suppliers. Determine how long they've been in business as well as their reputation for reliability.

One End of Life issue not covered by obsolescence agreements is configuration maintenance. Your customized ruggedized computer may be integrated into a larger system. How much of a hassle will it be to reconfigure the system when you get a new upgraded version of your current computer? Examine the history of your computer company's product line. Do they have a habit of significantly altering the dimensions or the port configurations from Version 1 to Version 2? Configuration stability is out there. Find it.

- 7) *No such thing as "Customized COTS."*

**False.** The DoD got into COTS in a big way, so they could exploit the superior supply chain, faster adoption of novel technologies, and the cheaper price. You CAN get these benefits as well tailor-made customization.

## Part Two: Name three wrong things the narrator did in the following story

"I needed a customized application for rugged computers. It was quite tricky. My team sat down, created a solution, and wrote the specs for it. We weren't sure which rugged computer company to use, so we picked a large one, assuming they had the best capabilities. They explained to us that our specs weren't practical. For one thing, the solid state hard drive required by our specs was much more expensive than we expected. We had to eliminate some of our wireless capabilities and other features in order to meet our pricepoint."

Mistake # 1: *Don't write specs for the solution; write it for your needs.*



One reason you hire outside professionals is to discover what's the most effective solution. In the example above, the specs called for solid state hard drives, which are very rugged. However, traditional spinning hard drives have been used successfully in ruggedized computers for years. Were the more expensive solid state hard drives essential for the narrator's needs? The experts would know. Let them figure out the best solution. Also, they may know of novel capabilities that you don't. As Ron McMahan, COO of AMREL, explains, "My favorite moment is when they look at us and say 'You can really do that for us?'"

*Mistake # 2: For customized computer companies, bigger is not better.*

The big boys may not have the incentive to give you the service that you really need. Their margins are dictated by large orders that require little effort on their part. A good rule of thumb in choosing a company is: "Big enough to perform, small enough to react."

*Mistake # 3: Don't change for the company; the company should change for you.*

This is really another way of stating Mistake # 2. The computer company described above didn't want to exert themselves, so they tried to convince the customer to downgrade their specs. If your customizing company keeps proposing solutions that meet their needs, not yours, that's a red flag.

### **Part Three: In one word, what is the most important thing to look for in a supplier of customized rugged computers?**

Relationship. In a high-tech world of engineering, bottom lines and number crunching, this may seem strange, but when researching this article, it was the word that came up most often. Important questions to ask are:

- Is this computer company accustomed to interacting with its customers?
- Do they have a business model that allows them to meet the needs of individual clients?
- Are they actually listening to me?

If the answers to these questions are yes, then you are ready to begin the customization process.

*Any questions or comments, please write to [editor@amrel.com](mailto:editor@amrel.com).*

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