



## **Building COTS products in a semi-custom standardization environment.**

VME enjoyed substantial success in the 1980's through today because of simplicity of implementation with few variations in the standard. This resulted in robust markets – both commercial and defense -- with several companies supplying boards, backplanes, card cages, power supplies, integration, and the like. Even today, there remain legacy applications for VME boards and systems!

However, with the migration of the industry to high speed serial connections (PCI-express, Gigabit Ethernet, USB) in lieu of traditional parallel interfaces (PCI, VME) to support unprecedented bandwidth needed for video, radar, and storage interfaces, new standards have emerged, principally VITA 46 (VPX), VITA 42 (XMC), VITA 65 (OpenVPX), VITA 74 (VNX), VITA 48 (Air/Conduction/Liquid cooling), and SOSA/MOSA (Military standard derived from VPX).

A fundamental driver for developing a sustainable and robust market like VME is the development and adoption of standards that are quite versatile and flexible to do whatever a customer might need to do. This results a multitude of “directions” from vendors, with respect to connectors used, I/O wiring on the backplane, sizes of boards, and so forth. It's critical to implement lines of COTS products with this in mind.

Since mid-1995, Technobox has been involved as a primary supplier of mezzanine cards. Starting with PMC (IEEE 1386), Technobox deployed hundreds of designs with well over 150,000 products to the field. And, now with XMC and all its variations, Technobox intends to do the same.

To support variations in XMC products required by VITA standards, Technobox:

- A. Implemented an in-house ISO-9001 SMT assembly line which employs world class and state of the art manufacturing technology and processes. We use MyData (Mycronic), Speedprint, MEK AOI, and particularly important is the Vapor Phase soldering. We also have an aqueous flux process, instead of no-clean, for assembly with leaded and RoHS solders; this is essential for conformal coating.
- B. Designed products that can be “configured” in a just-in-time manufacturing manner to support customer semi-custom “standards” need.
- C. Implemented in-house database programs to support manufacturing of these products.

Having in-house design and production facilities, removes various problems that external SMT subcontractors, especially the frustrations encountered when tasked to build different variations of something. Often, it's not worth their time and is unprofitable for them to take on unique, small batch jobs. Technobox can build small quantity of anything without being a nuisance to sub-contractors.

As far as design, Technobox is uniquely positioned to supply variations of XMCs based on selective population. It turns out most of the “customization” of an XMC occurs on the primary side of the assembly, while the secondary side can be designed and built to serve as consistent foundation board that can accommodate product variations. Hence, we hold a stock of secondary sides built up ready to go. This permits rapid development of board-level solutions based on connector system (VITA 42, 61, 88), variations in components (such as termination resistors), and interface functionality (such as RS232, 422, and 485) needed to support the customer's requirements.

So, with what Technobox has in place, you can be assured of quickly manufactured, quality products at a reasonable price and delivery.

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