

What is Product Modernization?

Over time, most “older” technologies are replaced with new and improved families of devices due to process and technology evolution. Sometimes, fringe and niche market devices, and special function solutions, do not get upgrades due to the poor return on investment by these leading device manufacturers. Sometimes, a company with a unique family of devices goes out of business, or they are bought out by a larger company that subsequently chooses to discontinue manufacturing the older parts. There are many reasons why a part becomes obsolete. The Manufacturing Manager and their Purchasing agent know exactly when the bad news is about to affect them when their favorite distributor or representative issue a “last purchase” notice, just prior to not being able to obtain their vital components for these best selling products.

A twenty-five year old embedded computer consisting of a 6800 8-bit microcomputer with a handful of support chips, including some 6810 128-byte SRAMs, a couple of 6821 Peripheral Interface Adapters, a 6850 Asynchronous Communication Interface Adapter, and a code-bearing 7804 UV-EPROM, will be very difficult to “repair” with replacement parts, even though the products have been fully functional over this extremely long period of time.

Our concept of Product Modernization includes the use of modern components to solve problems using the older, still-workable, and operational solution. Using the (above) 6800, 6810, 6821, 6850, and 7804 combination of components as an example, one possible replacement method would be the conversion of the microcomputer’s functions into state machines that run inside a single FPGA (have done it). Sometimes, the original source code is not available, or (worse still) schematics don’t exist. Then, “modernization” research that is more extensive may include the manual disassembly of EPROM binary information, and the ringing-out of the printed circuit boards and the full reverse engineering of the original product (have done it).

Perfect candidates for modernization are the “older” products loaded with “popcorn” LOGIC like 7400 series TTL, 4000 series CMOS, PALs and GALs, etc. Using current CPLD and FPGA technologies, it is almost trivial to shrink a 15”x18” board smothered in DIP packages down to a single 100pin PQFP device, with a corresponding decrease in power requirements and its resultant increase in reliability and availability. Don’t reinvent a wheel that is still rolling just fine. Maintain it cost effectively. If the wheel needs replacing, find a way to keep the same fit and function using modern materials.

How can we help you?