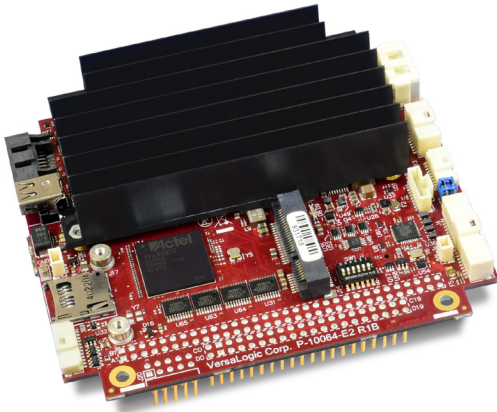


Migrating an Obsolete PC/104 Embedded Computer to a Long-Term Solution



Challenge

A customer's embedded computing solution for their gas analyzer systems was going end-of-life, again! They had previously had to switch suppliers, twice. To stop the cycle of expensive re-designs, they needed a long term solution from a vendor with a track record of providing long-lifecycle products.

Solution

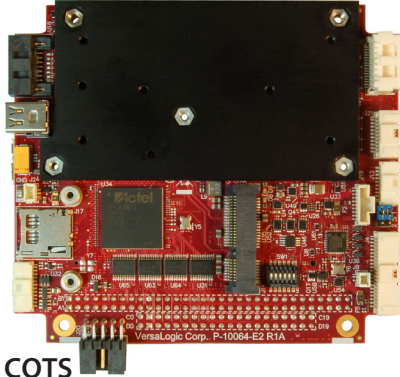
A PC/104 vendor with extremely long lifecycle products was selected, but the expense of another product re-design and migration still stood in the way. In the end, the vendor's ability to customize their standard product reduced the migration time and costs considerably.

Benefits

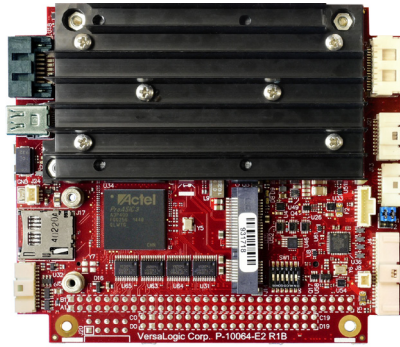
The modified off-the-shelf product was developed quickly for the customer as a drop-in replacement, saving money and time by eliminating enclosure redesign, cable changes, etc. Samples of the modified product were produced less than three months after initial contact. The "MCOTS" (Modified COTS) program had the flexibility and timing to solve the customer's migration challenge without delay.

Gas Analyzers with a Mission

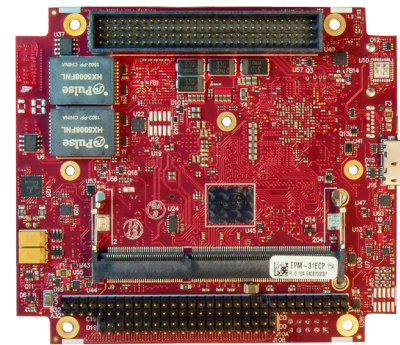
Gas analyzers are critical systems with mission-critical applications across a wide variety of industries including: vehicle emission testing, greenhouse gas monitoring, pharmaceuticals, power generation, and many more. In mid-2019, a leading manufacturer of gas analyzers approached VersaLogic Corp. to address their continuing challenges with the embedded computer that controls their system.



COTS



MCOTS



COTS



MCOTS

The challenge was the short product lifecycles of their current embedded computer supplier, and the cost of migrating to products with longer-term availability. After changing embedded computer vendors twice in the past, they were laser focused on working with a vendor that had a solid track record of supplying products for a minimum of 5 years.

Due to the complex OS and application software sitting on top of their hardware, they were also looking for a supplier that could ease their migration effort in some way.

The customer found what they wanted, and more. They identified a product with the same footprint (PC/104 form factor), required performance (Bay Trail processor), OS compatibility (Ubuntu 14 LTS), on-board I/O, and a lifespan that exceeded their initial requirements (available until 2029). Unfortunately there were still challenges to migrate the new board into the existing product.

The customer first evaluated the standard “BayCat” board to verify hardware/software compatibility with their system. The functionality of the processor and the board proved to be excellent.

The next step was to consider modifications to BayCat to make the migration path even simpler. The customer was using an ISA expansion board for I/O connections to their gas analyzer hardware and video display. The PC/104-Plus BayCat features both ISA and PCI expansion connectors so the first step for a modified version of BayCat was to depopulate the PCI connector. In order to enable the customer to use their existing cable harness, the power connector was changed and relocated. Other changes included pre-installation of SODIMM memory, modification of the BIOS to define the first boot device, mounting of a heat sink, revision locking, and custom part number and labeling.

Technical support was important during this period as well. For example, a code modification provided by VersaLogic allowed the customer to de-debug a complex ISA bus communication issue with other boards in the system.

It’s all about results

VersaLogic’s MCOTS process made smooth work of defining and approving the requirements, providing engineering samples, and delivering the first production batch to the customer. The time from first contact to delivery of engineering samples was less than 90 days.

The end result is that the customer, having now taken delivery of hundreds of the customized boards, is looking back at a very smooth migration effort, and forward to many years of stable embedded computer supply. They finally have a solution to their lifecycle challenges, and look forward to selling their gas analyzer systems for many years to come.

COTS

MCOTS

