



## Well Monitoring

### Requirement Summary

One of the top oilfield service companies in the world was looking to develop a data acquisition and compute system for well monitoring. Effectively monitoring well pressure, strain, and acoustics via fiber optic sensors helps them reduce maintenance costs and increase speed and efficiency of oil collection.

The data acquisition bandwidth and compute performance requirements vary between applications so they needed a solution that gave them flexibility to configure each system. High bandwidth for data acquisition, options for low power or high performance computing and storage scalability. In addition the multitude of locations and environments that their systems must operate in create unique packaging challenges.

### Requirement Specifics

They needed a platform that was open architecture with a large eco system of suppliers to select compute, I/O and storage solutions from, along with being modular and scalable. It needed to withstand potentially extreme operating temperature conditions while still being a commercial off the shelf solution to meet their economic and time to market objectives. They found their solution based on 3U OpenVPX architecture.

### The Solution

There is a large VPX supplier base - over 40 companies - providing processor, I/O, FPGA, and storage solutions. 3U OpenVPX products are designed to operate in air cooled benign through to the most extreme rugged environments (-40°C to +85°C). 3U OpenVPX allows for each system to be configured exactly as needed by adding or removing 3U modules in the backplane.

Concurrent Technologies was selected as the Intel processor provider for the system. With a broad 3U OpenVPX Intel processor product line, Concurrent Technologies was able to identify two products to meet all of the customer's user I/O (onboard Flash, SATA ports, serial ports, Ethernet ports and XMC site), performance, and power requirements. Concurrent Technologies delivered a high performance Intel® Xeon® (quad core 2.8GHz, 16GB DRAM) based product, TR E54/msd, and a low power (typical 12.6W) moderate performance Intel Atom® (quad core, 1.9GHz) based product, TR D24/msd, each providing the required user I/O.





## Challenges Faced

Flexibility and delivery schedule were decisive factors in the processor selection. Less than 5 days after the customer indicated interest in the TR D2x/msd solution a complete evaluation system, which included a small chassis with power supply, a TR D2x/msd processor board with SSD installed, Rear Transition module for easy access to rear IO and a TR XMC/301 XMC carrier to allow the customer to test out the data acquisition IO modules they use, was provided to the customer.

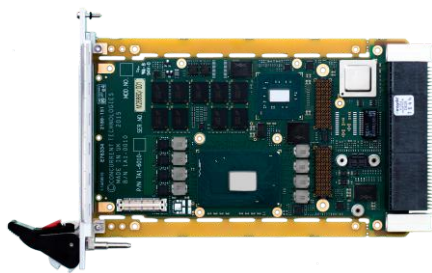
Upon completion of a successful evaluation the customer required technical information on the TR D2x/msd product to move forward with their unique packaging requirements. Again Concurrent Technologies within days provided, under NDA, information on product dimensions, heat sink mounting, thermal materials, etc. To meet their development and delivery schedule the customer needed to take delivery of the first few units in 4 weeks after receipt of order or less. With the established quick turn stock program Concurrent Technologies was able to commit and to deliver, per the customer's schedule.

## The Future

The modularity of OpenVPX allows for future system compute requirements to be met through upgrade and expansion. Concurrent Technologies continue to develop best-in-class solutions ensuring that the customer has long-term access to the latest Intel processor technologies utilized on VPX. 3U VPX provides the commerciality, modularity and ruggedness needed to meet the challenges of the oilfield services marketplace.

Both TR D2x/msd and TR E5x/msd are available in rugged conduction cooled versions for use in more demanding environments and are manufactured by Concurrent Technologies in our own surface mount production facility.

### TR E2x/msd Key Features



- > 3U VPX VITA 46.0
- > Intel® Xeon® Processor E3-1500 v5 family, up to 16GB DDR4 ECC DRAM, optimized for size, weight and power (SWaP)
- > Configurable VITA 46.4 VPX PCIe Data/Expansion Planes with support for Gen 1, Gen 2 and Gen3
- > Optional x8 PCIe XMC interface or front panel I/O
- > -40°C to +85°C, conduction cooled to VITA 48.2, conformal coated versions for extreme operating environments
- > Support for Linux, Windows® and VxWorks

### TR D2x/msd Key Features



- > 3U VPX VITA 46.0
- > Intel Atom® Processor E3800 family with versions that consume less than 10W
- > Configurable PCIe VITA 46.4 data plane fabric interface and compatible with OpenVPX module profiles
- > Optional x4 PCIe XMC interface or fixed panel front I/O
- > -40°C to +85°C, conduction cooled to VITA 48.2, conformal coated versions for extreme operating environments
- > Support for Linux, Windows® and VxWorks