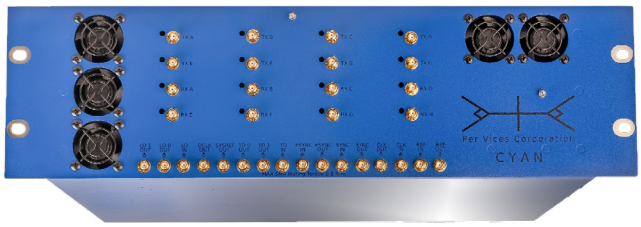
Per Vices Corporation

PRODUCT SHEET

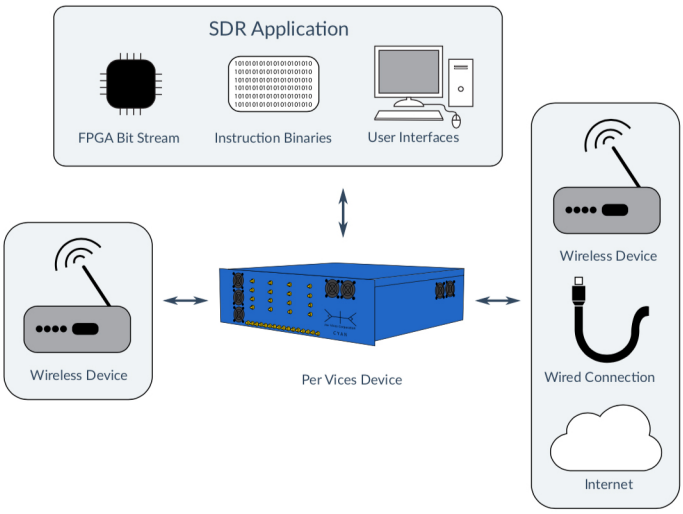
Per Vices Corporation
High Performance Software Defined Radio Products

What is SDR?



OVERVIEW

Conventional radios with hardwired circuits and specialized analog signal processors are hardwired and hard-coded for a single application. In contrast, Software Defined Radios (SDRs) are platforms with more flexible signal processing components that are designed to run on high-speed embedded systems. Processing of radio waves takes place on field-programmable gate arrays (FPGAs) on the device. Changing the SDR application changes the FPGA layout causing the SDR to change it's internal behaviour as if it had a whole different set of circuitry! You obtain the freedom to choose trade-offs that pertain to reliability and latency – choices that are usually dictated by hardware. With the future in mind, having a SDR platform makes it easier to add new features and swap in new equipment onto your existing infrastructure.



WHERE WE FIT IN OVERALL APPLICATION

Each radio has a set of boards for transmitting and receiving signals. This is where the conversion between analog and digital signals happen via signal sampling. For effective conversion, Cyan's RF Chain can sample 1GSPS with 16 bit resolution. Having a clearer digital signal allows you to offfload complexity into either the FPGA or into the software realm entirely.

Core to the SDR is the FPGA. Much of the encoding and decoding for in-band communication happens here. A good FPGA image can increase communication speeds significantly. Our SDRs use 8b10b encoding for in-band communication and offer on board data storage, as well as other custom options.

Once the incoming radio signal is digitized, it can be further processed in software. Both Cyan and Crimson support the latest linux kernel and network drivers with tweaks in place to mitigate the latencies that most standard operating systems introduce. Optionally, the radios can be managed remotely with numerous options for debugging and troubleshooting.

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KEY INTEGRATION VALUE

In the past low-latency development was difficult, costly and required lots of in-house development, but it doesn't have to be this way. Both Cyan and Crimson were designed from the bottom up with latency considerations at every stage of development. We use high quality hardware and design our radios with a special focus on decreasing latency at all levels (hardware, firmware, and so on up) while still providing you the flexibility (API interface for FPGAs, on board data storage, additional DSP resources, etc) to tailor the device to your needs. Our SDRs have the lowest latency point-to-point wireless links available . This has aided in the construction of point-to-point networks that have a tremendous benefits for distributed data transfer, civil & defence communications, and high-frequency trading alike.

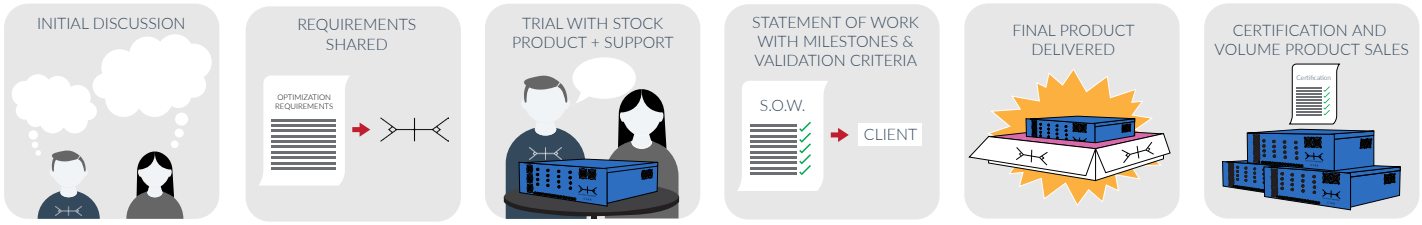
END CUSTOMER BENEFITS

With traditional radios, you purchase the hardware and your performance is almost entirely dependent on the circuitry of the device. Sometimes vendors pose additional restrictions that don't let you take full advantage of the hardware capabilities. There is no reason why this should be the case. Standards change. Industries adopt new data formats. Processing algorithms change. When assembling a high performance system, we believe it's important to be situated to capitalize on improvements wherever you can find them.

WORKING TOGETHER

Please contact us at solutions@pervices.com to learn more about how we can help you. Following our initial discussion, our team will support you throughout the whole process, from a trial with a stock product, to developing out specific requirements for a statement of work, all the way to the initial link set up deployment stages. Our sales engineers work with you each step of the way to ensure it's a smooth and easy integration of our product into your systems.

PER VICES COLLABORATIVE PROCESS



WHAT WE NEED FROM YOU

- RF parameters to be followed. We offer customization options such as low phase noise reference crystals. To ensure your technical requirements are met, we offer custom product tests to be carried out on each unit - in addition to standard tests - before delivery.
- What function we are responsible for. For example: all equipment specification and purchasing, site setups, only our radios, etc.
- Site locations. This is very important because we need to ensure the correct equipment, on both the receive and transmit sides, are going to meet the transmission power and sensitivity requirements to accomodate the loss between two geographical points. This will also help us in estimating the link reliability and offer different performance metrics based on broadcast and reception equipment.

WHAT TO SHARE WITH US

The most important things we need are the locations and performance requirements that you are looking to hit so we can ensure that we can provide an effective solution meeting your latency and reliability needs. We would further like to better understand what role you would like the SDR to play as it is possible to incorporate automatic link establishment and management, along with other features. During these discussions we will also discuss timelines and goals for the project as they relate to optimizing between costs and performance. All of this information helps us make sure that we are providing you with the solution best matching your needs while managing your own risks associated with new projects.

CONTACT US

More information is available at www.pervices.com.
If you have any questions, please contact us at solutions@pervices.com.