Design & Verification Services

New Wave DV provides custom engineering services and welcomes the opportunity to create a solution unique to your specific requirements.

New Wave DV has a dynamic team that excels at hardware, FPGA/ASIC, software, and systems design and development. Our team is made up of domain experts in high-speed interfaces, FPGA processing, electrical card design, network offload, and systems operations with a long history of successful programs in the Mil/Aero/Defense market. Our engineering resources and expertise enable customers to meet project deadlines, mitigate risk, and reduce overall program cost.

Solutions can be built upon existing New Wave DV products or built from the ground up. We will analyze your requirements, leverage existing hardware and IP cores where possible, create new designs where required, and ultimately deliver _your_ solution.

Engagement Types

Modified COTS Design

New Wave DV will perform a requirements review with the client and leverage, to the extent possible, existing New Wave DV hardware, firmware, and software products to meet client requirements. When necessary, new development will be performed in areas required to meet the customer objective. This approach keeps non-recurring engineering efforts to a minimum and reduces schedule for delivery.

Turnkey New Design

New Wave DV will develop a new hardware/firmware/software product for the client designed to their requirements or Statement of Work. New Wave DV manages the project from concept to product delivery, giving regular updates and providing opportunities for feedback from the client.

Staff Augmentation

New Wave DV offers engineering resources to client-led development efforts. In this model, high-quality New Wave DV engineering resources are provided to perform work as directed and prioritized by the client. This model is perfect for scenarios where the client needs to leverage engineering expertise to solve program challenges.

Service Types

- FPGA/ASIC Design
- FPGA/ASIC Verification
- Printed Circuit Board Design
- Software Driver Development
- LabVIEW Development
- High-Speed Interface Development
- Systems Architecture
- Ultra-Low Latency Network Design

Network Interface Design

New Wave DV has a long history and deep expertise in developing FPGA-based hardware, firmware, and software to deploy high-bandwidth and ultra-low latency sensor, storage, communication, and network interfaces. The interfaces typically reside within a data processor element (for example, the processor receiving sensor data) or within the data generator (for example, the sensor transmitting data to receivers). These data systems often have multiple high-speed data ports, feature network stack offload and/or data pre-processing, data aggregation/arrangement, security algorithm enforcement, and have high-bandwidth processor chip interfaces such as PCIe, SRIO, or Ethernet to CPUs/GPUs within the system. Typical system applications include mission computers, radar systems, electronic warfare units, signal intelligence devices, EO/IR sensor systems, and video processors.

Protocol Bridges

In the Aerospace and Defense industry, long platform life spans are the norm. When systems are being upgraded or enhanced, new equipment may need to connect to legacy interfaces to maintain system compatibility. Often, new COTS equipment may not have the required native interfaces to connect directly to the platform. FPGA-based protocol bridges are an ideal solution for this scenario. The protocol bridges allow new and legacy protocols to be bridged together in a transparent high-bandwidth and low-latency fashion. These FPGA bridge implementations allow for new COTS equipment to be used on existing platforms while requiring no changes to the existing equipment on that platform. New Wave DV has delivered many of these types of devices, including but not limited to bridges for Fibre Channel to Ethernet, HSDB to Ethernet, ARINC-818 to Ethernet, ARINC-818 to HDMI, and others.

Multi-Level Secure Networking

New Wave DV has the expertise to implement the required network security features and capabilities that are critical to Aerospace and Defense systems. These security functions are targeted at preventing and detecting intrusions from unauthorized external systems. Additionally, they enforce data segregation between multiple valid authorized systems operating on different operational levels. New Wave DV primarily implements these features in FPGA-based network applications where features such as packet inspection, filtering, labeling, segregating, and modification can take place in line with the traffic flow without latency or throughput implications.

Interface Test Instrumentation

A key focus at New Wave DV is the ability to deliver test equipment to support system interface design, test, and validation. This test equipment is used in design validation, system integration, simulators, emulators, production tests, and maintenance equipment. Test equipment from New Wave DV has been developed in standard form factors such as PCIe and PXIe, as well as customer-specified custom form factors. New Wave DV test equipment supports standard interfaces such as Ethernet, Fibre Channel, and 1394b, but custom proprietary interfaces can also be developed. Additionally, New Wave DV firmware and software developed for test equipment has features for validating key metrics such as bandwidth and latency as well as testing the robustness of a design via error and protocol-anomaly injection.