Troxel Aerospace Industries
Company Overview

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Company Overview

- Space system engineering firm focused on product development and engineering services

Products
- Fault tolerant SEU/SEFI mitigation middleware
- HSI & HTI processing, data extraction, and compression
- In-pixel processing in digital focal plane arrays
- A few other products currently in stealth mode

Services
- Onboard processing and storage sizing/design/prototype
- Smallsat mission design and reliability analysis
- Electrical and software engineering support
- Radiation test support and mitigation development
Fault tolerant SEU/SEFI mitigation middleware

- COTS processors provide orders of magnitude increases in performance versus SWaP compared to rad-hard options
- TID/SEL improving for COTS but non-destructive SEEs increasing
- Troxel Aerospace middleware improves SEE performance allowing space operations by reducing impact of SEFIs
- Executing a NASA SBIR Phase 1 in support of the HPSC program
- Currently supports a Broadcom quad-core A53 processor and porting to an AMD GPU, a to be announced DSP, and a unique architecture
- SEE testing to quantify improvement planned for early next year on all processors including on-orbit system

AMD GPU
Launched May 2016
4 of 24 in orbit
Environmental Test Services

- High-quality radiation environment qualification
  - Cost effective, high-quality SEE testing (heavy ion, proton, and neutron)
  - TID, DDD, prompt dose, etc., but frankly traditional test houses cheaper here
  - Team has performed hundreds of successful tests (all under NDA)
  - Numerous missions from LEO to GEO, ISS to strategic to deep space
  - In-house test development/analysis and end-customer interaction

- Electrical/thermal screening and qualification (with partner facilities)
  - Full Grade B and S and TOR level test and up-screening and lot acceptance
  - Electrical test and reliability qual. at component and MCM/board level
  - PEM qualification and package analysis
  - Product obsolescence and counterfeit detection/mitigation services

- Long heritage testing a wide range of relevant parts
  - Processors (including multi-/many-core), FPGAs, DRAM, Flash, etc.
    - Particular expertise with single-, multi- and many-core architectures
  - ADC/DACs, op-amps, comparators, optocouplers, transceivers, etc.
  - Hybrids, MOSFETs, bi-polar trans., oscillators, clock buffers, etc.
Other Technology Support

- **Dedicated smallsat launch vehicle**
  - Providing mission design, customer engagement, and smallsat configuration, integration, and test support

- **Fiber optic transceivers**
  - Supporting system design considerations for a 3.125 to 10Gbps per lane box-to-box optical transceiver to overcome copper speed/distance limitations

- **Precision agriculture**
  - Supporting a data analytics startup with spacecraft payload processing and data storage design for an HSI sensor
Contact Information

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