PSA
PROFESSIONAL SOFTWARE ASSOCIATES, INC.

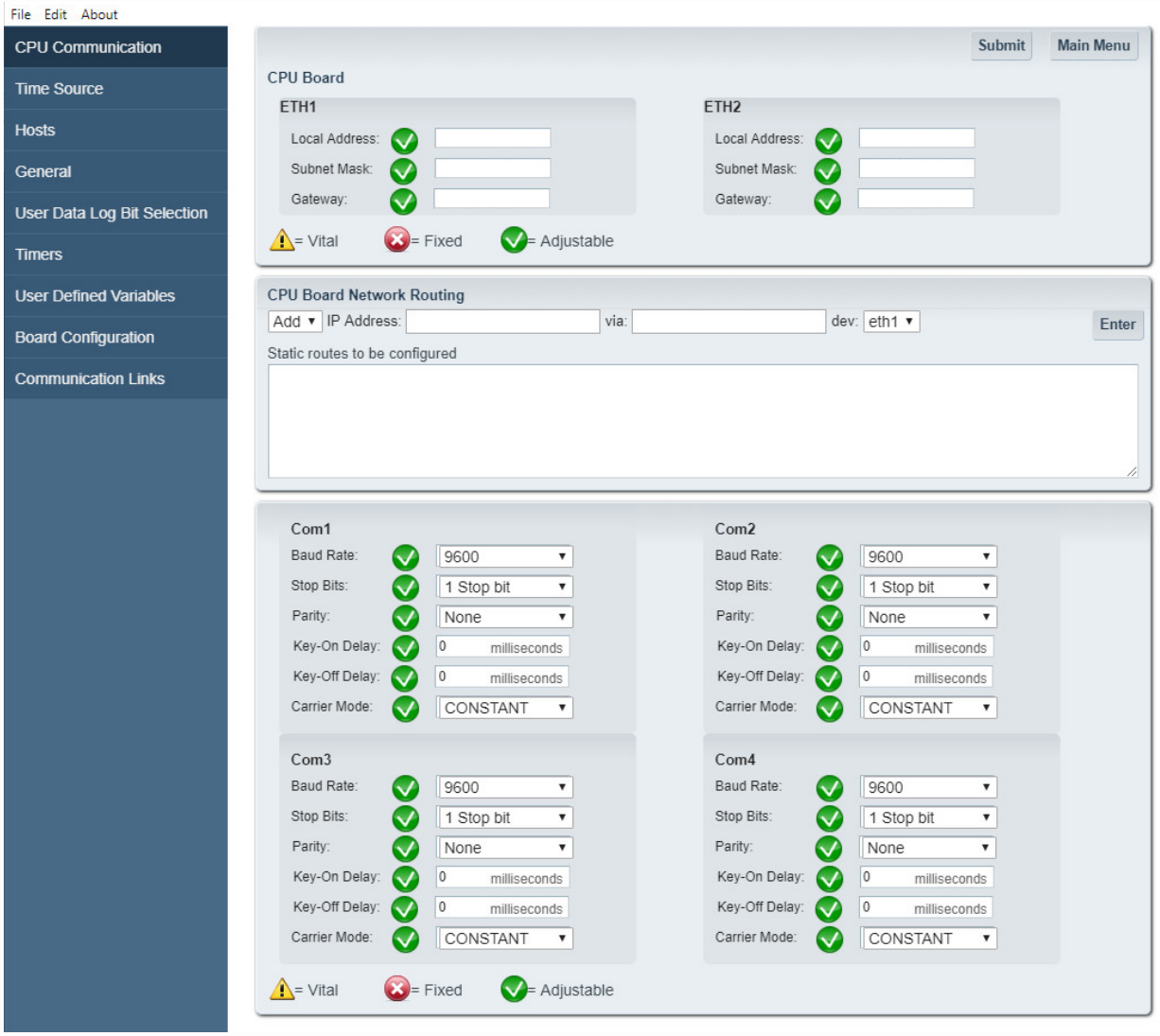
ADVANCED DEVICE FOR WAYSIDE TRAIN CONTROL

Datasheet

PROVIDING SOLUTIONS FOR TOMORROW – SINCE 1993

Project objective

Execute defect resolution, and implementation of new functionality on the frontend and backend for the board utilized for the wayside interlocking equipment monitoring, running on a Linux basis. This would increase the efficiency of executing interlocking operations for both PTC and non-PTC applications.



Result

The updated advanced wayside product is capable of coordinating wayside operations at top efficiency. The provided optimization contributes to accelerating the overall system performance and simplification of its use, while web updates are to manage the new functionality of the system.

Scope of work

- Reverse engineering to substitute missed documentation
- Reproducing the real-world defects by creating highly specific applications determining the system behavior was to simulate its certain states
- Creation and confirmation of hypotheses for unconventional issues, such as data loss when power off. Extensive testing and memory state analysis
- Bug fixing including functional and visual, logical and security defects. Code optimization to improve the overall performance
- Functionality upgrade to support board's updates. Implementation of editable tables to operate with data of various formats
- Frontend updates, including the web page layout, GUI, creating and adding new visual components. Updating scripts responsible for interacting with the backend
- Backend updates for debugging, logging and implementing frontend updates
- Creation of the tool to compile the application source code into a file processed by the board
- Creation of the tool for reverse compiling to convert the compiled application into source code for further analysis and modification
- Creation of the tool to compare applications, detect differences between them and create a comparison reports

Activities

- Requirements analysis and optimization
- Reverse engineering
- Bug fixing
- Frontend & Backend development
- Firmware development
- Code review and merging
- Testing activities
- Documentation creation

About the project

Technologies

- C++
- JavaScript
- HTMS/CSS
- Python
- Node.js
- Qt
- Visual Basic
- Bash
- Yacc
- Yaml
- Docker
- GitLab
- Redmine
- Trac
- Wireshark

Project size

- 6 SW Engineers
- 2 Senior QA Engineers

Duration

Platform

- Linux