24-09-2025

For:

**BE industries, Zichron Yaakov**

**SOW for the development of a boot loader**

**Introduction**

This document defines the terms of work for development of a boot loader for BE industries, Zichron Yaakov.

This document refers the technical description attached in the technical document.

This document assumes the understandings crystalized during preliminary technical discussions with BE project leaders.

**CFE (Customer Furnished Equipment):**

* Schematics of CPU connections including quartz connection
* A working circuit with DSP
* A buildable project to be loaded (note: .cmd file and some other things will be changed by contractor)
* In BE project: program the part of the function that calls GoToBurner(); that makes sure it is safe to download SW.
* PCAN device for PC

**Quality and reliability**

The Boot shall test for and perform:

* Each firmware record shall be protected by checksum
* Each burned record shall be verified
* The entire firmware shall be checked by Adler-32 checksum
* The entry point / statistics sector will be erased first and burnt last.

Test failures may lead to embedded software hangs; yet no operational software shall be erroneously invoked, and following power recycling firmware downloading may be re-attempted.

**Acceptance criteria**

**FAT:** Tested before delivery at contractor’s site

**SAT**: Tests designed and arranged by customers at its site.

* Interface looks and feels as agreed
* (FAT) Downloading the target works by the procedure with lone target, target wakes up correctly
* (FAT) powering down within downloading or sending faulty records: FW loading should fail but may be restored without connecting JTAG.
* (FAT) Word Documentation comprehensible by customer.
* (SAT) Customer succeeds in building executables in its facilities.
* (SAT) Downloading the target works by the procedure with other on line J1939 entities, target wakes up correctly and does not disturb J1939 flow

**Payments:**

According to attached cost proposal.

**Terms and relations**

No CFE is expected other than a target board and one PCAN unit.

The payments detailed below shall constitute the entire fee. The payments include 1 year warranty to any bug. price is fixed regardless of actual work deviations to any side. No Employer–employee relationship is expected.

The work till FAT readiness should complete in 2.5-month ARO. For each week delay the customer may deduce 5% of the fees, down to a maximum of 50% cut. Such deduction is not a contract termination.

The contractor shall not be held responsible for any unintentional damage to customer’s equipment, nor to any consequential damage.

On non-delivery or failure or incompleteness of any kind of the deliverables, the customer’s extreme remedy is a complete payment return. No compensation shall be asked for or sued above this limit.

Works, including FAT demonstrations, shall be by remote conference.

Integrations shall be made as much as possible remotely, but if personal meeting or special equipment are required, it will be done at Bet-El facilities, Zichron Yaakov. Any insurance required for such visits is the customer’s responsibility.

Unforeseen customer fair requests up to 15Hr value shall be honored with no additional cost. Greater unforeseen issues should be fairly discussed subject to the hourly rates below.

The contractor may use qualified engineers or programmers (at least a relevant B.Sc. or equivalent, at least 3 years of active programming experience) to participate in any part of the project.

This contract is governed by good faith and common sense. In the unconceivable case of law dispute, the laws of Israel apply, jurisdiction Tel Aviv.

**Unplanned termination**

Customer is entitled to cancel the work anytime. However, deducting claims of negligence on the part of the contractor, all the work done till cancellation is payable by the hourly rate of the calculation below. However no completed mission shall be charged more than stated on the table below.

If Contractor fails to deliver because of issues beyond control (e.g. Force majeure), or if delay fines exceeded 50% of the project’s cost, the decision how to act is left to the customer, who may ask up to complete refund.

If customer defers payment more than 30 days, it will be considered as project cancellation on the part of the customer.

**Deliverables**

All the deliverables (visual C# and embedded codes) shall be delivered to the customer as buildable projects with basic documentation. No executables shall be delivered.

Firmware downloading protocols shall be fully documented in WORD.

Downloading of the boot SW to the target will be fully documented.

Customer is expected to verify the builds by building the deliverables in its own facilities using Visual Studio C# 2022 and TI CCS 12.x or later.

**Rights**

The customer may use the deliverables in any manner. This includes making any modifications and distributions, using freely as is or modified in other projects. Reference to the contractor is not required.

The delivery does not restrict the contractor from reusing any component of the delivery for other business, as long as this does not imply any constraints on the customer.

**Confidentiality**

The project is not restricted. It does not apply special IP.

Standard commercial confidentiality holds. In special, the contractor is ready to sign NDA for any customer code in possession. The contractor does not require NDA on the customer’s side.

**Limits of delivery**

* The deliverable is NOT a safety software. Deliverables are not committed to any software standard.
* The work and delivery assumed one type of target. Adjustments for other target types may be proposed for additional fee.
* The work assumes clean communication. On faulty or noisy or congested communication lines, firmware loading may fail. However, it will be still possible to restart downloading.
* Bug correction or environment upgrade, as well as support beyond the 1-year warranty are payable as shall be fairly agreed.
* Military-style documentation (SRS, SDD, IRS, STP, SDP, STD/R etc..) may be delivered for additional fee.
* BIT shall be kept minimal for as specified above. Additional BIT functions (e.g. RAM/Flash integrity, as well as BIT coverage analysis) may be delivered for extra fee.
* No reliability or coverage analysis shall be done. Static analysis may be done for extra fee.
* The budget below does not cover tutoring customers’ workers more than required for operation. A short course for work internals may be ordered for additional fee.
* Production data stored in the statistics sector may be lost, unless allocated its own flash sector.
* The limitation of 2msec between consecutive messages can cause excessive loading time, since when the loading PC “goes to sleep” for at least 2msec between messages, it will not necessarily wake up immediately after the 2msec elapsed.
* If on warranty time the contractor is requested to support following misuse or bugs inserted by customer’s modifications, the work will be payable by the hourly rate stated below.
* Support shall be on a best-effort basis, fixes delivered within reasonable time. No hard time limit.
* Intermediate tools and test harnesses are not deliverable.
* Following delivery, the build environments pass to customer POC for their maintenance and configuration control. For each maintenance request following delivery, customer will pass an updated build environment to the contractor.
* Travels other than to Zichron Yaakov shall be compensated.