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Your contact	Our contact	Quotation no	Date
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Budgetary Quotation

BitSim AB (”BitSim”) hereby has the pleasure to offer a platform development project. The customer, in this case, NUNOC (”NORDUnet A/S Danmark, Filial NUNOC (NORDUnet NOC), with VAT no SE516405-1285”), wants a reference design intended for crypto applications to be delivered.

This quotation is based on the information and material that BitSim has received by e-mail, telephone and in meetings. The scope is to develop a reference design with a main processor and an FPGA, and supporting circuits. The idea is to re-use solutions from similar available designs, like the one from for example STM.
The customer has told us that the priority is to keep the development cost as low as possible. This means that the delivery time isn’t that critical.

1 Services performed by BitSim

1. Development of a PCB according to the new Alpha-schematic overview (from an e-mail by Fredrik Thulin in May, with an STM32 processor). The Alpha-schematic is a proposal of a solution from the customer. It is possible for BitSim to change or enhance this suggestion. All changes will be discussed with the customer.

2. Handling of all the commercial issues towards the sub-contractors for board manufacturing and assembly.
   Five (5) boards will be delivered to the customer.

3. BitSim will have its own internal person responsible for project management.

4. No VHDL-code for the FPGA, nor SW for the processors will be developed. Some VHDL/Software-code might be developed for use in the verification process.

5. The integration of HW, FPGA-code and processor-software will be done together with the customer. It is not known today how this work will be done, nor the amount of work.

6. Delivery of the boards, all design documentation for manufacturing and assembly of the boards and the test-software (if developed) after finalizing the project.

7. The customer is responsible to participate in the development team, for assistance, support and technical "know-how".

Milestones – MS (estimations)

1. Initial phase and System Design
   Initially, BitSim will work a few days to give a better estimate on the total no of hours needed for the project, with the new assumption (change of processor). Also defining how to work together: which data base, how often is a release needed, status reports etc.

   BitSim delivers a System Design Spec for review about one week after project start. After customer agreement, the project can continue.

2. Time and test plan
   A more detailed time schedule and a documented test plan will be delivered. The test plan will describe how the board will be tested.

3. HW/board-schematic
   Approximately two months after the System Design Spec has been agreed on, BitSim delivers the first version of the board schematic for review.

4. PCB-layout
   Approximately two months after the customer has accepted the board schematic/design, BitSim
   delivers the first version of the PCB-layout for review.

5. Boards
   The boards will arrive to BitSim's premises.

6. Test results
   Within two weeks or so, after BitSim has received the fully assembled boards, BitSim delivers the board to the customer, where the integration phase with HW, FPGA and processor SW can start.
   This under the circumstance, that, if any errors are located, the board can easily be patched. When designing the first version of the board, BitSim will try to design it in such a way that it will be easy to debug and to do simple patches..

7. Project end
   The project ends and BitSim delivers all the boards and material to the customer. When the processor can run Linux and communicate with the FPGA (towards the parallel I/F) and the AVR, the customer continues themselves. Of course, BitSim will support the customer during this phase as well.

2 Risks

Uncertainties that can affect the time schedule and time spent:

- Problems relating to the reference designs, the chosen components (errata) etc.
- It is not unusual to make a second version of the board (respin), since this board is a high speed design.
- Delays caused of summer holiday leave.
- The integration phase, where the HW, FPGA and processor SW will run together is a critical and difficult part of this project. It is very difficult to anticipate and estimate the needed time to get everything working properly right now.
- New processor, what about the Linux distribution, is it still stable and available?

3 Pricing and Conditions

BitSim will use its own design tools for the board development (schematic/layout including SI-simulation), so no extra cost will be added for this usage.

Other costs for other tools that might be needed (that the customer requires for example), components and manufacturing sub-contractors, will be added. For such an extra cost, a 10% administrative fee will be added.

This assignment will last around 3-4 months (average one (1) person working during the entire project), were the first goal is to have it started before the summer vacation. BitSim will try to parallelize the work as much as possible (on customer request), where it make sense. For example, the test plan (how shall the board be tested when received from sub-contractors) can be done together with the schematic design. Depending of the stability and no of unsolved issues regarding the schematic design, the PCB-layout might be done in parallel in the end of MS 3 (schematic).

Our estimations are done in a best effort manner were we need approximately 450-600 man-hours to finish this project.

This assignment will be performed at BitSim's premises most of the time. In the integration phase, it might be necessary to do it in the customer premises as well.

Status reporting will be done weekly by e-mail with no of hours worked, the progress and what will happen the following week. If needed, a telephone conference can be arranged. The customer is responsible for the overall project and has the project lead for the entire project. The customer needs to continuously accept our work on a weekly basis.

Suggested starting time: June 2015.

Terms of payment: A pre-payment of SEK 120 000 is charged after the customer confirmation, to start the project and this assignment. After this initial payment, 30 days net is the payment terms. The prices in this quotation are exclusive of VAT.

This assignment will be charged at an hourly basis at an hourly rate of SEK 900.

5 Others

If traveling is needed outside the Stockholm area, SEK 450/h will be charged if the traveling time can't be used for related work. Such a cost must be accepted by the customer beforehand. BitSim will always try to keep the cost as low as possible.

For other conditions than described in this quotation we refer to "General Terms and Conditions IT Services, the association of Swedish IT & Telecom Industry – 2008".

This quotation is valid until June 5, 2015.

Responsible person from the customer during this project and the customer project lead, is Fredrik Thulin, Ispik AB.
Administrative responsible person from BitSim is Niclas Jansson.

We hope this quotation is accordance with your expectations. We are looking forward to a confirmation in writing.

This quotation is accepted by a written order to Niclas.Jansson@bitsim.com.

Yours sincerely,

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