FAQ Development

For your information, we have compiled the most frequent questions we receive here.

FAQ General

Which hardware development services do you offer ?

We develop your electronic devices/systems from the specification sheet/concept to series production readiness. In scope adapted to your quantity and quality requirements. The focus is on your requirements for target costs (DtC), testability (DfT), manufacturability (DfM) and reliability (DfR). Naturally in cooperation with your industrial manufacturing partner.

Do you have an industry or application focus ?

Industries that we have already served: Aviation Cabin, Medical Technology Diagnosis and Treatment, Consumer Electronics Lighting and Smartwatch, Automotive Lighting + Powertrain, Digital Signage, Solar, Heating, Controls, Industrial Electronics, Home Automation and Control. With over 200 man-years of experience in the development and series production of electronic products, we will find a suitable solution for you. We ask for your understanding that project data is treated confidentially (mostly under NDA). Of course this also applies to your projects.

What other services can you offer ?

Advice on product design with regard to suitable technologies according to the state of the art. Training on tools used or created by us. Consulting on efficient procedures and processes of quality. Product support during the life cycle. Arranging contacts to EMS service providers and suppliers. Support in the procurement of components. Project management and organisation of service providers, risk analyses (EMC function, ...)

What's the best way to start ?

Ideally, you should come to us with a specification or requirements document, as required in the fields of avionics, medicine and automotive. You don't have a requirements specification ? Gladly we support you.

Why do you need a concept ?

A new development is always like a journey to a destination specified by the specifications. A good concept describes the implementation methodology for all project participants, minimizes the risks by means of measures and detailed examination, and enables initial estimates of the costs. A spontaneous journey certainly has its appeal, but in a commercial environment it is not. In our experience, the vast majority of projects fail due to a lack of or faulty concepts or

communication. Unfortunately, the effects can only be noticed very late in the project, but then usually very expensive.

How do I organize my project ?

You may place this task in the hands of our project managers. We organize the processes for you, create schedules and the communication and documentation required in the project. Of course we need your feedback and your decisions.

In which languages do you draft documents ?

German and English, you may choose.

How many development engineers do you have?

Assume > 200 man-years of development and series transition experience. In addition, we have access to our proven qinno network. We will gladly exchange further data in personal contact. We ask for your understanding that this goes beyond the scope of this website due to our growth.

Which certifications do you have?

ISO 9001 and 9100 currently valid, existing since 2011.

Technologies FAQ

Which printed circuit board technologies have you already realized ?

From simple, low-cost 2-layer to complex 10-12-layer boards with Micro/Buried Vias, BGA, QFN with controlled impedances. Also special solutions such as thick copper PCBs for heat dissipation or for high currents, as well as multiple PCB antennas in the GHz range. Flex, or rigid-flex printed circuit boards have also already been implemented by us.

Can you also develop analog circuits ?

Our developers still have the necessary basic knowledge. Also knowledge about circuit simulation, switching regulators, transmission lines and discrete components and an extensive standard library are available.

But also digital ?

Yes, extensive microcontroller and FPGA knowledge from numerous projects is available. By the way, when signals become faster, they become quite analog again ...

Are the components in my design available for a long time ?

We screen already in the concept phase, based on data of the component distribution and the general supply situation. Further steps are carried out in cooperation with the planned manufacturer, as he can assess the supply situation over the product life cycle on the basis of his databases.

Which tools do you use for circuit diagram and layout ?

We use Altium Designer, PADs, DxDesigner/Xpedition, KiCAD, or Eagle. In order of current frequency of use. Your tool is not included ? Please feel free to contact us. The ability to develop electronics is independent of the tool. This only facilitates the implementation, sometimes only to a limited extent.

What is taken into account in the PCB layout ?

e.g. the impedance design, current carrying capacity of lines, RF design, as well as the 3D collision coordination with the mechanical design and an optimal assembly of the components. The coordination with the PCB manufacturer is also important for non-trivial PCBs. And much more.

What equipment do you have ?

We have the necessary equipment to commission and qualify electronics, as well as to build and modify prototype series. Especially in the EMV and HF area we have the specialized equipment for pre-testing. We carry out tests conforming to standards in laboratories accredited for the tests.

Test FAQ

What do you actually qualify for?

Qualification means checking the characteristics of the design. This ranges from the qualification of the electrical values of the PCB (voltages, currents, timing, signal integrity, tolerances ...) to environmental qualification (thermal, IP protection class, mechanical shock/vibration), also in cooperation with external test laboratories.

Compliance with electrical safety and electromagnetic compatibility (EMC) is required by law. EMC and electrical safety (burst, surge, ESD, conducted and radiated interference input and output) can be largely pre-tested in-house. The final qualifying measurement is performed in accredited test laboratories.

Why is Design for Test (DfT) important ?

The quality of the result depends on the possibility to test it in the development phase and in production. So you can deliver a perfect product to your customers. As this is always associated with time and therefore costs, the design must already be developed in a way that is optimally

adapted to the test methods (ICT, Flying Probe, Boundary Scan, functional test, self-diagnosis ...). There is no universal test method, at best it is too expensive.

Industrialization and product support FAQ

What is meant by Design to Cost (DtC)

Numerous studies show that 80% of the costs of your product are fixed in the development phase. Therefore, the cost/benefit ratio must always be taken into account when selecting technologies and specific components.

What does Design for Reliability (DfR) mean

If you want to ensure that your product really does achieve a specified service life, additional measures are required. This ranges from statistical calculations (FIT/MTBF) to special tests (ALT/HALT). In certain industries, such as aviation, these are already mandatory. We would be pleased to advise you on this.

That you can manufacture a development (Design for Manufacturing, DfM) is a matter of course, isn't it?

Yes, the question is, with what effort. Here it is important to know the manufacturing processes and steps and to minimize and optimize them accordingly. The data for the manufacturing company must be prepared completely, consistent and conclusively according to the common data formats. Here you can trust our many years of experience in the transfer of products.

Product support - what is that?

Over the life cycle of your product, it will probably become necessary with increasing maturity to find replacement types for components, to carry out redesigns, or to carry out requalification in case of changes in standards. We can support you in this.

Mechanics design FAQ

What do you understand by mechanics ?

The "packaging" of your electronics. From an electro-technical point of view, protection against environmental influences, part of the cooling concept, as well as EMC influencing variable. Of course in a professional outfit. We would be pleased to support you here in design and production in cooperation with experienced partners. Whether plastic, metal or special housings, in small or large series. We will find a sensible and professional "packaging" for your product.

Software FAQ

What kind of software do you develop ?

Hardware-related embedded software (firmware) without operating system (bare-metal) or based on Linux, control applications, test and driver programs, operating system adaptations and also PC applications, as well as Windows programs.

But I would need a Smartphone App ?

Here we work together with partners who have direct access to the Apple and Google app stores and coordinate the data communication with the embedded system.

Which programming languages do you use?

Mainly C, C++, Assembler, Java, HTML, PHP, Visual Basic, Python.

Do you use Open Source Software ?

Yes, this reduces the effort considerably. We would be happy to advise you on the environment of these licenses.

Interested

Have we caught your attention ?

Contact us