

## COMMON INTERVIEW QUESTIONS

with Responses; by Tom Gustin

### GENERAL QUESTIONS \* :

#### **What do you do for fun?**

As often as is practical I enjoy working in our woods, repairing critter thickets, harvesting dead wood for winter fuel, helping my partner (*where possible*) with her creative gardening creations, taking walks down our road as if it were a private sidewalk, watching and hearing the hawks, owls, peckers, and a dozen other kinds of birds in our private “park.” It is even engineering-inspirational.

#### **What do you like to do when you are not at work?**

Have fun. See previous answer.

#### **What is your favorite TV program?**

Any one of the very few that create spontaneous, uncontrollable, gut-movn’-til-it-hurts laughter; certainly, there is not enough ☺ therapy on TV these days.

#### **Why did you leave your last job?**

The last job I left was in June of 1996, and I left to start GUSTECH, my outlet for helping many different companies with many different kinds of problems, in any engineering services capacity that is needed. I am looking for a job because my work status is now considered to be: “between contracts.”

### ABOUT YOUR EXPERIENCE :

#### **Describe the job you have held in the past that was most gratifying.**

The most recent/current job is my most gratifying. The real time enjoyment of working on a team or completely by myself to create a works-on-first-power prototype, product or family of products, is very rewarding. Since being an independent contractor I have had an extremely broad exposure to many different markets, needs, and clients, all desiring a range of deliverables in various formats. It has been like being a temporary part time employee for dozens of different companies over a dozen years, contributing significantly to every single project.

#### **Describe your previous job experience.**

I worked for three different companies for the first 20 years of my career (now all out of business), all preparing me for the future engineering activities. About half of the projects were as a lead team member, the other half (due to limited resources) required solo-gigs where I performed all of the engineering services, from concept through completion. That same ratio has held for my current role as contract electronic hardware design engineer. I have been responsible for the fielding of dozens of products over those years, even patented ones, many of which are still operational. My entire career has been very rewarding, due primarily to the many wonderful partnerships with other technical staff, the great success record of accomplishments, and the huge ongoing learning process involved with just keeping up with technological advances.

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\* Derived from a Questionnaire used by Quintessential Careers

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### **How can you help our company be more profitable?**

As a temporary team member I bring to your engineering group a vast background of experiences, contributing my unique segment to the overall project's success. Due to my planning, researching, designing, writing, and training techniques, your return on investment (my compensation for services) will realize a net profit very quickly, and for a long time to come. As a problem solver, I have never encountered a project that could not be completed, even though it seemed that way in the beginning of several of them. Creative engineering always works, eventually.

### **Tell me how you would handle multiple projects on the job.**

Since ALL of my projects (including single task Research Projects) include a comprehensive upfront planning process, multiple projects are often ongoing, with a master GANTT-Chart plan that interleaves the different projects' tasks as varying needs dictate. Since the critical path is always known, schedules are always met (with sufficient resources applied) with successful task completions.

### **What aspects of your job do you consider most crucial?**

The launch of any project is generally the most crucial; the COMPLETE PLAN<sup>†</sup> almost always guarantees success and the best return-on-investment. In a photo-finish tie with proper planning is ongoing and complete communications with all of the team members (including other departments' contributions before and after the engineering phases). No man is an island is proven daily with all engineering projects; it is the sharing of information that often causes success. Perhaps the most important form of communications is all of the technical writing that occurs in every little step and phase of every project; clear thoughts that provide a complete brain-dump of the project for future support long after I have departed the team.

## **ABOUT YOUR SKILLS:**

### **Describe a professional skill you have developed in your most recent job.**

The most recent large design contract included the development of a stack of 5 PC-104 form factor boards, one of which was a 4-layer high density control board loaded with a large Xilinx FPGA, SRAM, FLASH, USB, tons of general purpose analog and digital support circuitry, including fully operational VHDL-based system diagnostics. The actual **PC board design**<sup>‡</sup> was the major learning experience, giving me a new appreciation for the art and craft performed by a few of my best friends, along with the ability to adequately provide more engineering services to my future clients/partners as a one-stop-shop if they need it.

### **How much experience have you had with computers?**

My first CPU-based design, in 1976, was based upon the first 4-bit CPU, the Intel 4004. I also developed several products, through 1977, on a pair of 8-bit devices, the Intel 8008 and 8080. I moved from there to design a 12-bit machine based upon 4-bit "slices." In 1978 I started designing Motorola machines (6800→6802→6805→6809→6810→68010→68020, etc.). I also designed custom interface boards for several super-mini computers, including SelBUS (later Gould) and DEC's VAX machines in a couple of real-time aircraft simulation applications. I have developed many embedded CPU and DSP products since, with the largest and latest being a quad-Opteron (AMD' SledgeHammer) Blade.

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<sup>†</sup> My web site [www.gustech.biz](http://www.gustech.biz) presents more details and examples of the very important PLAN pieces.

<sup>‡</sup> My web site presents a couple of examples of PC boards I have designed.

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### How well can you multi-task?

In a world of ever-present interruptions, the ability to multi-task is perhaps the best natural talent to have (also a key characteristic of this Gemini). Multi-tasking is a natural condition of most design efforts, pausing to discuss ideas with team-members, or researching a needed component, or assisting briefly with an entirely different project; all normal. Good ongoing documentation always permits a successful return-from-interrupt continuation when returning to the primary tasks in the process flow.

### How would you rate your communication skills?

Ask any one of my previous technical training students<sup>§</sup> and they will tell you that I am blessed with a gift for communicating very difficult technology concepts in easy-to-understand formats. Whether it is in front of 50 engineers for three days of intense electronics and protocol training, a research report, an all day critical design review, or 115 pages of D-size schematics, it is all vital communication of information, both for the present, and future reference. A quick peak at any of my VHDL<sup>\*\*</sup> code's comments will provide evidence that I deliver brain-dumps in my documentation; primarily because I am also blessed with a terrible memory (my documentation becomes my memory).

### What would your colleagues tell me about your attention to detail?

I am meticulous to a fault, leaving no stone unturned to cover every contingency imaginable. Well, they probably wouldn't say it that way, but they would confirm that very few details get past me. My VHDL simulations are testaments to thorough design-test coverage, and my diagnostics rarely miss testing a sub-circuit, if possible. The usual detail-shock occurs when a new client gets their first look at one of my project plans, specifically the Work Breakdown Structure and its tightly-coupled GANNT-Chart. Long years of experience (*reads as*: learning from doing it the wrong way first) have taught me that the more details that are included in the plan, the higher the probability of success. So details are included in all phases of my engineering services.

## ABOUT YOUR WORK STYLE:

### Are you able to meet aggressive deadlines? Do you have experience doing so in the past?

Yes and Yes. Because of my upfront plans, I am able to finish tasks when I say I will, which has always pleased my managers, and greatly helped other departments (Marketing, Sales, Production, etc.) with their conjoined tasks, like new product announcements and launches without delays. One of the best (publicly verifiable) examples was the successful launch of a full family of 23 different I/O board level products for Systran Corporation in just two years by a tiny team of engineers (myself, one other hardware engineer, one software engineer for product testing, and two co-ops assisting him). No shortcuts were taken since all of the efforts complied with our ISO-9001 standards (which I was instrumental in establishing for Systran just a couple of years prior). Thorough planning, exhaustive simulations and analog breadboard-bench-testing, methodical design reviews, and complete brain-dump documentation enabled on-time delivery of all products, all of them working perfectly on the first application of power, all Alpha articles going straight to production. Yes, I am also fairly proud of that aggressive design effort, one I attempt to bring to every contract effort.

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<sup>§</sup> My web site includes some feedback from a few of my many Technical Training students.

<sup>\*\*</sup> My web site includes a couple of example pieces of fully-commented VHDL code.

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### **Do you like working alone or in a team environment?**

Yes and Yes. I have no preference since each configuration brings with it its own rewards. I learn the most while working with a team; creativity flows freely if encouraged properly. There are always other more knowledgeable team members in many facets of engineering to learn from. As mentioned previously, about half of my design contracts have been solo-gigs, almost entirely as a telecommuting technologist (my regular contribution to “green” engineering). I even have a few past clients whom I have never met face-to-face (substituting copious quantities of other forms of communications). The size of the project and its target completion time span usually dictate the size of the team, from one to many. The plan’s GANNT-Chart, with its critical path and allocated resources, predicts the number of team members needed.

### **Do you prefer continuity in structure or frequent change in your daily work?**

Yes! Since reality consists of both, I do not view this as an either/or kind of question; both exist and both are fully engaged. The continuity in structure is supplied by a project’s plan so that none of the vital pieces to success are overlooked or done out of sequence. Frequent change is embraced because (engineering) variety is the spice of (engineering) life. All paths lead to the same end, eventually.

### **How do you go about making important decisions?**

Sometimes an important decision takes on an engineering-life of its own, incorporating many of the main tasks that a product design would include. Within every well composed question lies the answer, analogous to a plan. Research breeds more sub-questions spawning more research; all questions seeking answers. Framing the decision is comparable to a design effort, covering all the bases, tackling all the details, answering all of the sub-questions. Documenting the decision is just like the Technical Writing phase of a design effort. The communication of the decision to those needing it is often similar to a product’s training task. Incorporated within these decision-making processes is an incubation and thinking process that is best described by the Founder-of-Sony’s approach to deal-making. “I swallow the deal, and if it gives me a stomach-ache, I know it’s a bad deal.” Like a fine wine, sometimes a decision needs a little time to evolve into the best choice possible.

### **How do you measure the success of your work?**

From the product point of view, if it works according to the statement-of-work and the specification, and was developed within the plan’s effort, duration and budgeting constraints, then the development effort was a success. From a personal point of view, if I learned anything, or preferably many things, then the project was a success. A follow-on contract from the same client usually confirms a prior success-story.

## **ABOUT YOUR RESUME’:**

### **Why are you currently unemployed?**

By the time you read this, I may not be. I successfully completed my last contract and am now actively searching for a new one.

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### **Why have you held so many jobs in recent times?**

Since my contracts average 3 months each, with the longest being 11 months in duration, and the shortest one a week, many various types of engineering services can be rendered to many different clients in a single year's time.

### **Would you consider working for a single employer again?**

I prefer to benefit many different organizations with my talents, as needed, rather than hoard them for just one client/employer. I worked for a single employer three different times during my first 20 years of my career, preparing myself for the last 20 years of my career, helping many different clients, if possible.

### **Tell me something about yourself that I didn't know from reading your resume'.**

Conspicuous by its absence, I prefer not to develop products requiring RF, Microwave, and other extremely high frequency analog designs. I have done them over the last few years, and didn't enjoy them as well as most other technologies. When I enjoy doing something, I will do it well, and everyone reaps the benefits. Being weak in RF theory permits me to pass these kinds of designs onto others more proficient in them. Having said that, most of my high speed digital designs, especially the more recent VHDL-FPGA ones, have included clock speeds nearing 400MHz, which every designer knows is really analog design work at this point.

## **EDUCATION AND TRAINING:**

### **Everyone has a favorite class in college. What was yours?**

As a dual-minor, I enjoyed Psychology and Philosophy courses the most, taking every class offered at the time. As it turns out (some 39 years later) these courses were heralds of a personal passion that has served me well in the preparation and delivery (at several, local, annual "shows") of several series of seminars, many short essays, and even a book manuscript on personal growth issues.

### **Have you taken any classes since college to bring your skill up to date?**

Yes; they are generally presented in my resume'. Most of my post-college class-work was/is technology or management focused topics, generally as short seminars, some of which went on for several weeks. There is a bucket-load of wisdom in the saying that ***the best way to learn something is to try to teach it.*** I apply this truism directly every time I present a Technical Training seminar, and every time I assist in Mentoring local college Engineering Seniors with their Senior Class Project, or every time I present a product-related seminar to company personnel as part of a design contract, etc.

### **Is there anything you would change about your college education?**

Hind-sight being 20/20; yes. I would have been wise to select an institution that focused on teaching the students how to be self-teachers, how to be curious, how to be "outside-the-box" creative problem solvers, how to be better communicators and writers, how to plan, how to conduct exploratory research, how to play/enjoy the processes involved with solving technical problems and creating useful products in the wake. Instead, my college experience was only about memorizing formulas and spitting them back on tests, with no structure or purpose. I am glad that I became an engineer anyway.

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### SOME ACCOMPLISHMENTS:

#### **Have you ever managed a project for your previous employer? What was the result?**

During the first couple of years of my career (late 1976 ⇒ mid 1978 while at ACD Corporation) was the only time in my career when I did not manage my own projects. Ever since, I have managed almost all of them, partially or totally. Every single project has been a success (worked according to plan and specification; see success-measurement on page 4). As mentioned before, about half of them have been solo-gigs, while the other half have been as the lead engineer, usually guiding (supervising) a team of technologists for success.

#### **Tell me about a project you completed ahead of schedule.**

Almost all of my projects are completed right on time, or slightly ahead of time, provided the plan was well prepared and resources were not robbed. I must confess that I was a week late in delivering my first big (6 month) solo-job-prototype at Systran in 1989. My new management was elated that it was only a week late; I was shocked by my first tardy-design in many years. My new management was also very happy that I created a working product that Chief Engineers from two different companies said “could not be done.” Such beliefs become self-fulfilling prophecies; beliefs that I do not hold.

#### **What makes you unique and why should we hire you over any of our other candidates?**

Being blessed with a terrible memory, I enter every new project with a clean slate, open to all possibilities. Every Data Acquisition System that I have ever designed, and there have been many of them, is unique, because I view the tasks without boundaries and apply no artificial constraints, and tap into the infinite field of possibilities for the best technical solutions to every question. Often my team members or students will be heard to mutter: “that’s not in any of our text books,” or “where did you come up with that solution?” or “I’ve never seen that before,” ... Creative engineering techniques have always served me well, with many great successes (by any definition) as the results.

You should hire me because I am a jack-of-all-trades, from concept to completion, providing all of the vital engineering services required to be a success (planning, research, design, writing, and training<sup>††</sup>).

### CAREER GOAL QUESTIONS:

#### **Describe your ideal job.**

The “ideal” job is one where the client has already conducted their market research study, the product features and functions description, a detailed product specification, all of which are a Statement-of-Work. With that in hand, I would develop a Work Breakdown Structure and a GANTT-Chart plan as the basis for a proposal for a Firm-Fixed-Fee contract for the prototype development and delivery. After an iterative massaging process, a Purchase Order would be issued for the product development. I would need to engage the client’s internal resources in various levels of interaction throughout the development process, like design reviews and inputs from other departments; but, otherwise I would be autonomous until final delivery. Now, let’s get real... The “real” job comes close, but usually where I need to develop the features and functions and specifications and statement-of-work myself. These “real” jobs are also usually Time-And-Material projects because of this upfront fluidity.

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<sup>††</sup> See my web site for many more details and examples of all of these services, and more.

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### **What are your work-related goals for the next few years?**

- ◆ I simply wish to continue offering contract electronic hardware design engineering services to those clients lacking the internal resources (time and/or people) to do them by their own engineering teams.
- ◆ I wish to continue to be a temporary virtual team member for these clients.
- ◆ I wish to continue to bring to market successful products, be they hardware or simply research reports, or training programs, etc.
- ◆ I wish to do this until I can no longer feel fulfilled in doing so.
- ◆ I wish to continue to learn about new technologies and techniques, applying them in contracts.

### **Where do you see yourself in five years? In ten years?**

In five years I still see myself sharing in design projects with many different clients, as we find each other. In ten years I hope to find myself working a little less intensely, but still aiding others as possible. I enjoy sharing in the creative processes, so I will be engineering (solving problems, technical or not), in one way or another, until I am done.

## **MANAGEMENT QUESTIONS:**

### **Have you ever hired anyone? What qualities do you seek?**

During several past employee-sponsored projects (pre-1996) as the team leader (manager) I was responsible for the building of the team from both internal resources as well as external hires. This occurred three times at Systems Research Laboratories, and once at Systran. The launch of the I/O Solutions group at Systran involved bringing in all outside assistance, and is the most recent example.

The teams all worked great due to the types of people that were added. Each of them brought a unique and complimentary skill set, a unique perspective based upon past engineering experiences, and a unique personality. When the team was complete, a group existed where ego was left outside in the parking lot, all members had (and were expected to bring) opinions and contributions to every project task, all members were peer-level, equal-footing participants, all working really hard to create great successful products. My job as the leader was primarily to plan projects (with team member inputs) and manage a minuscule budget, guide and mentor the junior (college co-ops) members, deal with upper-level management (the rest of the team were glad they didn't have to do that), and provide by example my best concept of executing creative engineering processes for the rest of the team. I was not a "boss"; I was a fellow engineer who did a lot of (what they thought was) non-engineering activities that seemed to them to get in the way of progress. Since then I have heard from both of the other senior engineers (one hardware, one software) and both acknowledge that they learned a lot about project and team management from my example. That, by the way, is what I call successful leadership.

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### **What makes you a successful telecommuting engineer?**

First, let me be clear about one thing; it's not easy. If it were, everybody would be doing it. There is a five-way tie for the most important characteristic for being a successful telecommuting technologist:

**1a) Self-discipline:** doing what must be done even if I don't feel like it;

**1b) Organization & Planning:** everyday requires a planned approach, and being organized permits efficient execution of the many tasks that need to be accomplished;

**1c) Independent:** courage to jump in with both feet to make a decision requires absolute confidence in my own abilities;

**1d) Professional:** this contract work is very important for my client, and even more so for me; and,

**1e) Desire:** arguably the most important of all, the desire, the inner drive, must be so strong that it is nearly impossible to work any other way.

Some other traits that seem to be handy include:

**6) Work is inherently rewarding:** all facets of my engineering services are enjoyable as they are being executed, which is reward enough. If I didn't need the compensation for services rendered, I would still do this kind of work (see my online engineering project as an example: Hatching DASlings as an example of uncompensated engineering services).

**7) Calm:** staying calm when many things are not going right (simulation failed, computer locked up, monitor died, ran out of ink, dial-up won't connect, need more firewood from the barn, dog just launched breakfast, and the bills are due) is a first rate lesson in patience and an excellent time to take a five minute break, drink some coffee, and reset thyself. The simultaneous crises will have dimmed way down by the time I start dealing with them, one by one, until there are no problems and the VHDL error jumps out in bold letters saying FIX ME next. No Problem. NEXT!

I have been "growing" these traits for many years, and am finally getting really good at being an extremely efficient telecommuting contract electronic hardware design engineer as a result.