



FAQs

Below is a list of commonly asked questions that we received. Don't see your question on this list? Please email us info@msxconsulting.com and we will be happy to answer your question.

- **General**
 - Can I get a quote?
 - What is a PCB? What is a PCBA?
 - How long does it take to design a circuit board? (Because I needed it yesterday...)
 - How much does it cost to design and manufacture a PCB?
- **Business**
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 - Will you sign a non-disclosure agreement (NDA)?
 - Will you provide a Statement of Work (SOW)?
 - Do you do all your work in house?
 - What are your standard contract terms?
 - What is your work schedule?
 - When do you answer emails/phone calls and hold meetings?
 - Would you work on-site?
 - Do you make revisions? How many revisions do I get?
- **Monetary**
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 - Do you have a minimum project fee?
 - Do you require a deposit?
 - When is payment due? Do you offer NET30 terms?
 - What kind of payments do you accept?
 - Do you charge a late fee?
- **Design**
 - Do you need a specification? A napkin? Can I just have an idea?
 - What is the design process?
 - What materials do you need from me?
 - What CAD programs do you use?
 - What if my previous CAD files aren't in Altium?
 - Will you help me get in touch with a vendor about X?
 - Do you do mechanical design?
- **Manufacturing**
 - Why don't you include manufacturing in your quote?
 - What is the minimum manufacturing time?

- Are your boards manufactured in the US or China?
- Will you use my manufacturer?
- What is the difference between your rapid prototypes and standard PCBs?
- What drives manufacturing costs?
- Do you do rework?

General

Can I get a quote?

Absolutely! Please fill out our [quote form](#) and we'll be happy to get back to you as soon as possible with an estimate.

What is a PCB? What is a PCBA?

PCB stands for “printed circuit board” and is a commonly used term when describing a circuit board. PCBA stands for “printed circuit board assembly” and refers to an assembled circuit board, which in addition to the PCB (also called a “fab” for the bare, fabricated board) has all the components installed on it and is ready for use.

How long does it take to design a circuit board? (Because I needed it yesterday...)

The design cycle for a circuit board varies greatly depending on the design complexity and material provided upfront. Some simple designs or updates to existing designs can be completed in as little as 1-2 weeks. More complex boards that require a full design cycle can take 1-6 months. Please use our [quote form](#) to submit as much information as possible so we can provide you with the most accurate estimate.

How much does it cost to design and manufacture a circuit board?

The costs of both design and manufacture of a circuit vary greatly depending on design complexity as well as requirements of the board itself. Please use our [quote form](#) to submit as much information as possible so we can provide you the most accurate estimate possible. Keep in mind, however, that we typically do not quote for manufacturing up front, as these costs are difficult to estimate without accurate information to provide our manufacturers.

Business

What services do you offer? What if a service isn't listed?

Below is a short list of services that we offer:

- Brainstorming and Advice
- Architecture
- Design and Reviews
- Component Selection
- Schematic Capture
- PCB Layout
- CAD Conversions
- Manufacturing
- Bring-Up Testing
- Firmware
- Scripting

This list is not an exhaustive list of all our services. If the service you require in is not listed above, please email us at info@msxconsulting.com and we'll be glad to see if we can help!

Will you sign a non-disclosure agreement (NDA)?

Yes, provided that the NDA does not interfere with any previous agreements we have made with other clients, vendors or manufacturers.

Will you provide a Statement of Work (SOW)?

Yes, we provide an SOW as part of the contract for your review prior to starting a job.

Do you do all your work in house?

All design work and manufacture of rapid prototypes is currently done in-house. In the future, we may subcontract some design work out to help meet the needs of our clients. Manufacturing of our standard PCBs is done through our network of contract manufacturers (CMs). For questions regarding CMs and our manufacturing process, please see the Manufacturing section of the FAQs below.

What are your standard contract terms?

A sample contract can be found [here](#). Most terms are negotiable during the contract process.

What is your work schedule?

We operate a typical full-time schedule of 40 hours per week. Typical work hours are Monday through Friday from 9am until 6pm. Office hours have been set aside each day to answer email, phone calls and hold meetings. More information on office hours can be found below.

When do you answer emails/phone calls and hold meetings?

Emails, phone calls and meetings are taken care of during office hours. Office hours are held Monday, Wednesday and Friday from 3-4pm as well as Tuesday and Thursday from 9-10am.

Would you work on-site?

We offer on-site project work for our clients on an as needed basis. We are happy to meet clients on-site to discuss projects, give updates and provide support. We do not offer full time contract work on-site.

Do you make revisions? How many revisions do I get?

Revisions are negotiated as part of the contract process. Typically, we provide minor revisions as part of the project terms. However, if a revision is deemed outside the scope of the minor revisions covered by our standard contract, an updated SOW or contract may be required.

Monetary

Are you hourly or project-based? What's your hourly rate?

Our firm is primarily hour-based and our current rate is \$125/hour. For smaller, well-defined projects we may operate on a single project-based fee. The total estimated cost quoted includes all aspects of the project, except for the manufacturing cost.

Do you have a minimum project fee?

Yes, our minimum project fee is \$2000.

Do you require a deposit?

Yes, we require a 15% deposit paid upfront before starting any project work.

When is payment due? Do you offer NET30 terms?

We typically offer NET15 terms, which means that payment is due 15 days after the invoice date. Payment terms are negotiable as part of the contract process.

What kind of payments do you accept?

We accept electronic transfer, PayPal, check or credit card. We accept electronic payment through our contract website [AND CO](#) as well as through [Square](#).

Do you charge a late fee?

Yes, our typical late fee is \$50.00 for payments received after the due date.

Design

Do you need a specification? A napkin? Can I just have an idea?

We accept any and all input to help us get started on your project. Heck, if you're not quite sure what you'd exactly want, we can provide brainstorming assistance as well! Please fill out our [quote form](#) and send along any supporting materials you may have (specifications, CAD, documents, diagrams, etc.) to help us quote your project as accurately as possible. Oh, and please hold on to your napkin; a photo works just as well 😊

What is the design process?

We've written a whole page on our design process! Check out our How We Work page [here](#).

What materials do you need from me?

The more information you can provide for your project, the better! After filling out the [quote form](#), please email any supporting information to quote@msxconsulting.com. Supporting materials include items such as specifications, CAD, documents, diagrams and other information.

What CAD programs do you use?

Our primary electronic CAD (ECAD) tool is [Altium Designer](#). We also have experience on staff using other tools such as Cadence Allegro, OrCAD, Mentor Graphics, EAGLE and more. A license fee might be required to work on non-Altium designs if conversion is not possible.

What if my previous CAD files aren't in Altium?

That's okay! We are able convert most CAD formats to Altium at no additional cost to our clients. If another CAD tool must be used instead of Altium, a license fee might be required as we do not typically carry licenses of other CAD tools.

Will you help me get in touch with a vendor about X?

We offer general consulting service as part of our suite of services, which includes help contacting vendors and getting questions answered. During the project design process, we will also be happy to help you get in touch with a specific vendor if needed. Outside of a contract, we will be glad to make an introduction to someone in our network.

Do you do mechanical design?

Our mechanical design capabilities are limited, although we do provide some basic mechanical design services such as basic enclosure design, thermal design and circuit-related design (i.e. mounting hole placement, custom board shapes, dealing with height restrictions). We also have in-house 3D printing capabilities for basic designs, either created for a client or provided by a client directly.

Manufacturing

Why don't you include manufacturing in your quote?

Manufacturing costs have many factors and often require complete design files to get an accurate quote from our manufacturers. We will be happy to estimate manufacturing costs, but the actual cost will be calculated at the time of manufacture and charged along with the design costs at the time of invoicing. If the client provides detailed project information or old design files, we will do our best to get an accurate quote upfront.

What is the minimum manufacturing time?

For rapid prototypes, the minimum manufacturing time is 24 hours. For standard PCBs, the minimum manufacturing time is 48 hours. Please keep in mind that faster turn times can greatly increase the cost of manufacturing.

Are your boards manufactured in the US or China?

We have manufacturers in both the US and China. Most prototype boards we produce are typically manufactured in the US due to schedule and low volume requirements. Depending on schedule, quantity and cost requirements, we may choose to have boards produced in China with the approval of the client. Note that boards produced in China typically cost less, require longer lead times (typically 4 weeks) and can be produced at much larger volumes.

Can I use my manufacturer?

Absolutely! We can either work with your manufacturer to have your circuit boards produced or we can send the manufacturing files to you so you can work with your manufacturer directly.

What is the difference between your rapid prototypes and standard PCBs?

Standard circuit boards are manufactured with a contract manufacturer (CM). They are typically more rugged, can be made with a variety of materials, meet very demanding specifications and are typically built anywhere from 3 to 20 business days, depending on cost. We work with several CMs in both the US and China, and we will be glad to work with your CM as well.

Rapid prototypes are typically reserved for proof-of-concept designs. They are produced by MSX Consulting in-house on our own milling machine. These boards are required to be much simpler, with the following limits:

- Max Quantity: 10 boards
- Material: FR-1
- No soldermask
- Layers: 1-2

- Max Dimensions: 5.5 × 4.5 × 1.6 in (140 × 114 × 40.6 mm)
- Min trace/space: 6 / 6 mil (0.153 / 0.153 mm)
- Hand assembled

If you're not sure which type of board manufacturing is right for you, please email us at info@msxconsulting.com.

What drives manufacturing costs?

Many factors can drive the cost of manufacturing. Some typical factors include:

- Manufacturing Speed (Turn Time)
- Quantity of Boards
- Board Color (other than green, blue or red)
- Number of Layers
- Copper Thickness
- High-density Technologies (i.e. smaller pitch, via-in-pad, blind/buried vias, etc)

If you're curious about what's driving the cost of your manufacturing quote, let us know and we'll be happy to provide you more information.

Do you do rework?

Yes, we do in-house rework of circuit boards. Typically, we ask that components are no smaller than 0.024 × 0.012 in (0.6 × 0.3 mm) and that the board quantity is 20 maximum.