

## REAL SOLUTIONS - FAST

Our unique approach to solution design allows Tracan to leverage years of experience to achieve perfect-fit solutions in an almost unbelievable time frame. We deliver complete integrated solutions in as little as 6 weeks.

### Unique Building Block Approach

#### Your Requirement

This is the start of our process. We help our customers capture all important details to ensure you get the perfect-fit solution to your requirements. This is all recorded in a document called a Design Project Plan or DPP.

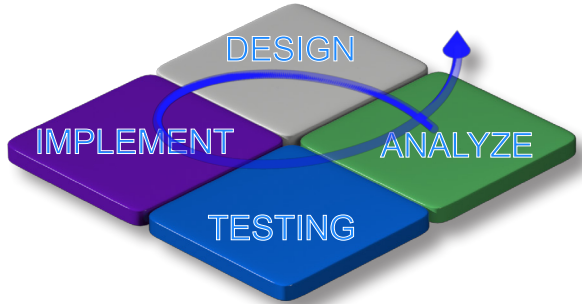
#### Design Project Plan

The DPP documents all the deliverables and functional requirements and is the guide we use to validate the end solution.

#### Apply Our Knowledge Base

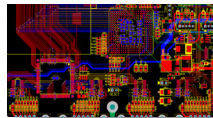
After the goals of the project are well defined we then apply our pre-proven, pre-deployed Building Blocks. This vastly reduces development time and risk exposure. Since our Building Blocks are field tested, there are no learning curves or oversights to impact the development process. Not all elements of our designs are Building Blocks. We find most designs still require a new Building Block to be engineered. Often this is only a small portion of the overall design. This approach reduces your time to market and minimizes the risk of time and cost overruns.

Design Project Plan	
Project Name:	
Customer:	
Product:	
Version:	
Date:	
Author:	
Reviewer:	
Approved:	
Scope:	Complete and define the project technical objectives and specifications for the _____ hardware.
Specifications:	
Electrical	
Power Input	<ul style="list-style-type: none"> <li>1. 5V/500mA. Resistor on board edge connector.</li> <li>2. 3.3V/1A. Resistor on board edge connector.</li> <li>3. 1.8V/1A. Resistor on board edge connector.</li> <li>4. 1.2V/1A. Resistor on board edge connector.</li> </ul>
Low Voltage Output	<ul style="list-style-type: none"> <li>1. Provide for 200mA of COM power supply output when power is removed.</li> <li>2. Low Voltage Output Resistor: 10K Ohm. 500mA/100V. 100 Ohm. 100V/100mA.</li> </ul>
Storage	<ul style="list-style-type: none"> <li>1. Single Digital Bus Media Card (SD/MMC).</li> <li>2. Standard 1.8V.</li> </ul>
Serial	<ul style="list-style-type: none"> <li>1. RS485. 10K/100V/100mA.</li> <li>2. Serial ports routed to COM ports to interface via board edge connector.</li> <li>3. COM A: RS485/RS232. 100V/100mA/100mA.</li> <li>4. COM B: RS485/RS232. 100V/100mA/100mA.</li> <li>5. COM C: RS485/RS232. 100V/100mA/100mA.</li> <li>6. COM D: RS485/RS232. 100V/100mA/100mA.</li> </ul>
COM	<ul style="list-style-type: none"> <li>1. Single Programmable I/O (SPI).</li> <li>2. Standard 1.8V/100mA.</li> <li>3. Standard 1.8V/100mA.</li> </ul>
Other	1. All I/O/Outputs with isolation magnetics.



#### Mechanical

When requirements demand it, we will 3D Solid Model our designs and provide a variety of mechanical technologies most appropriate for the solution.



#### Electronic

Baseboards, System On Modules or Computer On Module implementations all utilize our Building Block approach to rapidly realize designs and reduce your risk at the same time.



#### Software

Linux, Windows, QNX, VHDL & Drivers are all part of our toolkit. We utilize some of the best development environments available.

#### Building Blocks

And counting! Every completed design adds to our proven library of reusable Building Blocks. This approach reduces design risk as well as design time. When time to market issues exist, we will be able to deliver **even when** your own internal resources can't.



#### Solid Modeling

Being able to 3D model all aspects of a design right from the internal PCB to the enclosure allows us to fully engineer a complete solution, meeting both mechanical and thermal design criteria.



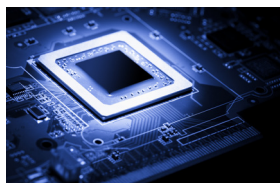
#### Cost Certainty

Once the DPP is fully defined, we will quote a single price along with the appropriate business model for production. This gives you the cost certainty for the design... No more cost overruns!



#### FPGA Development

Utilizing FPGA and CPLD technology, we can stuff many functions in one device thus reducing size, power & cost of the design. Designing with FPGA's also allows us to create consistent API's for developers in convenient programming structures further making your application development easier. Tracan has dozens of developed IP blocks ready to be dropped into any application.



#### Board Support Packages

When doing base board designs, it is imperative that all the software hooks are available to the application to utilize the on-board functionality. We guarantee our designs will have all the resources available to the application layer. Your developers can spend their time on what they do best, your application and not low level driver development.

Thinking Inside The Box



TRACAN  
ELECTRONICS

## Validation

Once the design has been realized, it is validated against your requirements as documented in the Design Project Plan. Complete functional validation is performed based on these criteria. This process, and all other aspects of our business, is governed by our ISO9001 Quality Procedures.

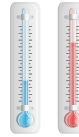
### Functional Validation

Every function block of the design is assessed and validated. Critical signal paths are tested for integrity and power supplies are characterized for performance.



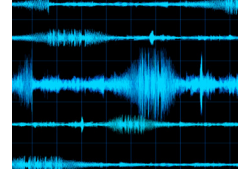
### Thermal Qualification

Where required, we will qualify the design to a specific temperature standard. Tracan has 2 thermal test chambers in house for design qualification as well as production testing as required.



### Shock & Vibration Qualification

As with the thermal qualification, Tracan will qualify a design to a specified standard, where required. We use our own vibration equipment to pre-screen our designs. This helps to ensure the product passes the final validation test at a certified lab.



### Regulatory Requirements

Tracan can be involved or even undertake the entire responsibility of obtaining various regulatory standards certifications. These include general safety, EMI/EMC and military standards or other specialized standards such as Class 1, Division 2.

## Production

### Business Model

Tracan is not a design firm, but an embedded solutions provider. We provide low cost engineering to mitigate up front costs and other barriers to starting new projects. Our model is based on the simple premise that our success is bound to the success of our customers and their projects.



### Design Ownership

Rest assured that the design remains unique to you the customer. After a production threshold is attained, all design documentation is transferred to our customers. This gives you the choice to continue to have Tracan produce the product or optionally take on that responsibility yourself. Our model is flexible and is tailored to each project. These details are established during the engagement process and documented in the Design Process Plan.



### Life Cycle Management



Our responsibility does not end when production starts. We undertake the task of providing ECO & EOL management for the life of the product. Our designs endeavor to be available for a minimum of 5 years or more, allowing maximum return on your investment. Life Cycle Management will be implemented as required to extend the longevity or robustness of the solution.

## Solution Example

### iCLX – Rugged Datalogger

#### A flexible hardware platform

In the Mining Industry asset management is frequently achieved through the installation of a wide variety of dataloggers each required for a specific task. This reality makes it necessary to carry spare inventory of multiple dataloggers and requires technicians to be familiar with multiple systems. The flexibility of the iCLX makes it possible to use one standard piece of hardware for all your datalogging needs. This is accomplished through the configuration and deployment of one hardware platform, reducing the variety and often the quantity of dataloggers required for your fleet.

#### Increasing your productivity

Reliability is the key to any successful asset management solution. In a mining environment this is particularly true due to the cost of the equipment and the scale of the operation. The iCLX is focused on providing timely and accurate data, operating seamlessly without drawing attention. This allows our customers to focus their attention on the maintenance and performance of their fleet.

#### Rugged solution by design

Operating a computer system in a mobile environment is no small task. Mining presents additional challenges of seasonal weather changes and the stress of shock and vibration, requiring the design of any product to meet these demands. The iCLX addresses these issues by utilizing an environmentally sealed enclosure with internal shock and vibration isolation. The design also incorporates a high performance UPS power supply designed specifically for vehicle integration.



For More Examples - <http://www.tracan.com>