SOC
SUPPORT MENU

In-roads to accelerated development and a stronger business using a System-on-Chip (SoC).

TECHNOLOGY ENGINEERING

SO YOU CAN FOCUS

The complexities of configuring an SoC shouldn't stand in the way of launching your new products and changing lives around the world.

DornerWorks engineers have extensive experience working with SoCs in a number of markets, and look forward to integrating Microchip's PolarFire SoC in future solutions.
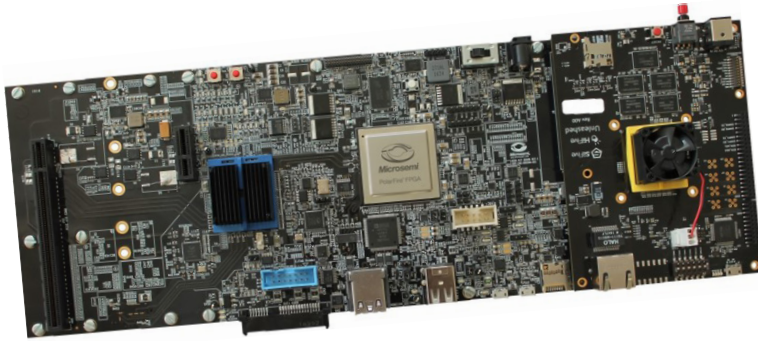
We can help you:

- Quickly get your applications or operating systems up and running on your platform

- Identify critical features of your SoC

- Refine your SoC configuration to optimize performance

- Grow your business

SOC
DEVELOPMENT TIMELINE

Early investigation 01

Hardware selected 02

Design phase 03

Development 04

Pre-deployment 05

Product development stages

MENU CONTENT

01 SOC
QUICK START PACKAGE

WHEN YOU NEED IT

• Early investigation phase, before you have selected the hardware for your project
• When you are using your hardware for the first time and require initial training
• When you want to increase the size of your team and don't want to pull engineers away from development to train new staff.

WHY YOU NEED IT

Start developing on hardware quicker, and grow your team's ability to work on the SoC without losing momentum.

CONFIDENCE
in your SoC development

Choosing the right hardware for your project is one of the first steps in development, but it may require substantial investment.

Make sure you're on the right track with a Quick Start Package from DornerWorks. You'll get a better understanding of your chosen platform, and the tools you need to accelerate development.

On-Site Training

Get a handle on the capabilities, I/O, and performance characteristics of your MPSoC platform.

Architectural Consultation

Learn more about your platform's security features, virtualization, and trust-zone.

Reference Design & Work-Flow

Build on this working platform as your scale your product and grow your business.

02 SOC PERFORMANCE CHARACTERIZATION

WHEN YOU NEED IT

Once you have chosen an SoC for your project, or are seriosuly considering it, and would like benchmarks for your custom hardware.

WHY YOU NEED IT

Getting good performance numbers on a new chip can be costly in time and money.

BENCHMARK DEFINITION FOR

HIGHLY CUSTOMIZABLE SOC PLATFORMS

With an SoC chosen for your project, the Performance Characterization Package will give you confirmation that you've made the right decision, and important benchmarks for your custom hardware configuration.

Defined Performance Requirements

Benchmark Results

Analysis of Results

Source Code and Instructions

We will provide you with relevant and repeatable benchmarks such as:

- CPU performance
- Memory usage
- Boot time
- Worst-case latency
- I/O
- Memory throughout

03 SOC
ALLOCATION
CONFIGURATION

WHEN YOU NEED IT

Once you are confident in your selection of the SoC and have non-trivial resource allocation needs, or are simply confident that you'd rather spend your time elsewhere.

WHY YOU NEED IT

Allocation configurations can eat up precious time and resources. If you don't have the capability or bandwidth to do it yourself, we can create one for your:

- APU
- RPU
- FPGA soft core
- Trust-zone

- APU virtualization
- Boot sequence
- BSP
- PMU extensions

A WORKING CONFIGURATION
That you understand

Requirements Work-Through

Increase your product confidence with a thorough vetting of your requirements driving required allocations.

Analysis of Requirements

Understand your allocations inside and out.

Reference Design

See how your desired allocation of resources and processing elements will affect your final product.

04 SOC HETEROGENEOUS SUPPORT

WHEN YOU NEED IT

Once you've determined you need communication between different processing elements on your SoC.

WHY YOU NEED IT

A unified framework will help you use multiple, interacting processing elements (RPU, APU, FPGA soft cores, PMU extensions, trust-zone, VMs) in your system, and save time and money over the cost of building it youself.

A UNIFIED FRAMEWORK FOR

COMMUNICATION & REMOTE PROCEDURE CALLS

Complex development needs a stable footing and DornerWorks Heterogeneous Support Package will provide the foundation you need to move toward launch with confidence.

Communication Framework

Architecture Refinement

Performance Evaluation

Your unified communication framework will cover:

- Design (your understanding of how it works)
- Source code
- User instructions

We will also provide you with a reference design of the framework in use, and expected performance numbers.

05 SOC
PERFORMANCE OPTIMIZATION

WHEN YOU NEED IT

During development, or later in the process, when you want to get more performance, higher throughput, decreased latency, or increased determinism out of your SoC.

WHY YOU NEED IT

You can still improve performance late in the development process without making massive changes to your code base, or moving your schedule back.

A FULL KNOWLEDGEBASE

So you can tune your SoC on your own

**Configuration &
Source Code Changes**

**Improvement
Explanation**

**Test Code
Demonstration**

DornerWorks Performance Optimization Package will give you insight into the source code elements that will bring out the most your SoC is capable of, and evidence of the improvements made.

06
FPGA
ENGINEERING SERVICES

ACCELERATE YOUR DEVELOPMENT

Designing a new FPGA for your SoC platform can rob your team of development hours and resources.

DornerWorks guides companies to success with engineered solutions for sea, land, air, and space, using FPGAs, hardware-configurable SOCs and custom IP.

Those companies aren't using up time and energy trying to implement new technology.

They are leading the way.

DornerWorks can architect data pipelines to your requirements, help you integrate 3rd party or custom IP, and optimize your software and FPGA systems to work seamlessly.

PROCESSING

DISTRIBUTION

> " **DornerWorks is a professional, flexible, AND AN ESSENTIAL PART OF OUR TEAM** "

DEVELOP QUICKLY
RETAIN KNOWLEDGE
DornerWorks provides the knowledge base and training to help you configure your FPGAs on your own.

DIVERSE & VERSATILE
PLATFORMS
- Real-time video
- Time-synchronous networking
- RF communications
- Machine learning
- DSP

MULTI-DISCIPLINE
DESIGN PARTNER
- Turnkey solutions
- Design migration
- Algorithm implementation & acceleration
- Hypervisor-based separation
- Video processing IP
- Custom IP

seL4 MICROKERNEL
ENGINEERING SERVICES

ARE YOU RISKING YOUR BUSINESS
ON POOR SECURITY?

If you need true security, half-measures just won't do.

Complete formal verification is the only known way to guarantee that a system is free of programming errors, and one of the achievements of seL4. seL4 has already been proven secure, so you don't have to do the extreme math yourself. DornerWorks will help you fill in the gaps to enhance your security story.

WHAT IS seL4?

- The world's first formal proof of correctness of a separation microkernel.
- Small footprint (8,700 lines of C code and 600 lines of assembler)
- Member of the L4 family of high-performance microkernels

- Hardware support: x86, ARMv8, RISC-V
- Virtualization mode
- Purposefully limited features

seL4 PLATFORM INTEGRATION

You don't have to look far to find the words "data breach" or "cyber attack" in the news. But, with a robust security solution, you can make sure your name isn't attached to it.

The seL4® microkernel is a cost-effective, open source solution you can use to build products on a trusted software base, and DornerWorks can accelerate your integration. We are leaders in accelerating integration of seL4 as the trusted software base for your product.

Increase cyber-resilience

The seL4 spec and binary satisfy the classic security properties of integrity and confidentiality.

Reduce costs

seL4 is open source, which means it's free to download and use.

Restore confidence

seL4's security is mathematically proven, and supported by a growing ecosystem of developers.