



MPSOC/RFSOC SUPPORT MENU

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

TECHNOLOGY ENGINEERING

SO YOU CAN FOCUS

You can change lives with state-of-the-art platforms like the Xilinx MPSoC or RFSoc. Guidance from a trusted product development partner can accelerate your time to market and strengthen your business along the way.

DornerWorks engineers were some of the first to work with the Xilinx UltraScale+ MPSoC and the RFSoc, and have collaborated with Xilinx and others on its earliest applications.

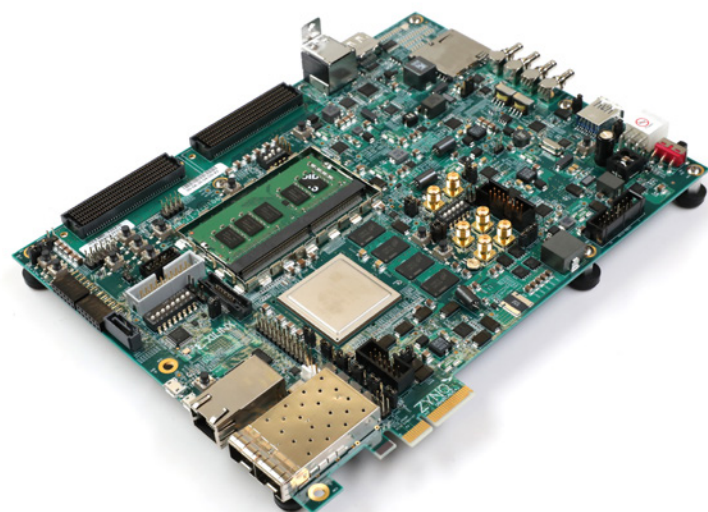
We can help you:

- Quickly get your applications or operating systems up and running on your platform
- Identify critical features of your MPSoC/RFSoc
- Refine your MPSoC configuration to optimize performance
- Grow your business



Xilinx recognizes DornerWorks as an Alliance Program Premier Partner and one of the first design firms in North America to work with the RFSoc.

MPSoC/RFSoC DEVELOPMENT TIMELINE



Product development stages

Early investigation

01

02

Hardware selected

Design phase

03

04

Development

Pre-deployment

05

MENU CONTENT

QUICK START PACKAGE	4
.....	
PERFORMANCE CHARACTERIZATION	6
.....	
ALLOCATION CONFIGURATION	8
.....	
HETEROGENEOUS SUPPORT	10
.....	
PERFORMANCE OPTIMIZATION	12
.....	
FPGA ENGINEERING SERVICES	14
.....	
SEL4 ENGINEERING SERVICES	16



01

MPSoC/RFSoc

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 MPSoC/RFSoc without losing momentum.

CONFIDENCE

in your MPSoC/RFSoc 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 you scale your product and grow your business.



02

MPSoC/RFSoc

PERFORMANCE CHARACTERIZATION



WHEN YOU NEED IT

Once you have chosen an MPSoC/RFSoc for your project, or are seriously 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 MPSOC/RFSOC PLATFORMS**

With an MPSoC/RFSoc 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 throughput



**03**

MPSoC/RFSoc

ALLOCATION CONFIGURATION



WHEN YOU NEED IT

Once you are confident in your selection of the MPSoC/RFSoc 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 you:

- APU
- RPU
- FPGA soft core
- Trust-zone
- APU virtualization
- Boot sequence
- BSP
- PMU extensions

A photograph of two women sitting at a desk, smiling and looking at each other. The woman on the left has curly hair and is wearing a light blue blazer. The woman on the right has blonde hair, wears glasses, and is also wearing a light blue blazer. They are in an office setting with a desk, a laptop, and some papers visible. The image is overlaid with a semi-transparent white box containing the main title.

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**

MPSoC/RFSoc

HETEROGENEOUS SUPPORT



WHEN YOU NEED IT

Once you've determined you need communication between different processing elements on your MPSoC/RFSoc.



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 yourself.

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 MPSOC/RFSocC 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 MPSoC.



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 MPSoC/RFSoc 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 MPSoC 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 SOC's 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.



“ 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
- Radio/RFSoc
- Machine learning
- DSP



MULTI-DISCIPLINE DESIGN PARTNER

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



07

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

TRUST YOUR SOFTWARE

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.





TECHNOLOGY ENGINEERING

SO YOU CAN FOCUS



We can help you accelerate product development at any stage in your timeline.

Get started with an **MPSoC/RFSoc Service Package** that will help you overcome development challenges and grow your business. Contact DornerWorks today!

DornerWorks.com