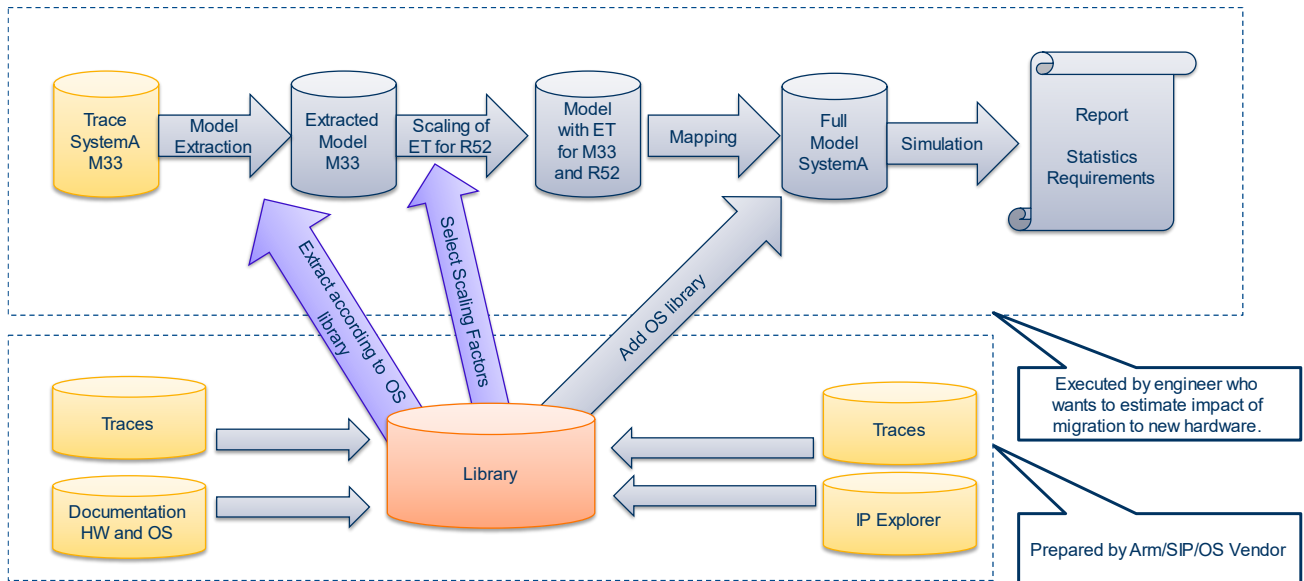# Lean SoC Choice and Software Migration

Picking a new SoC and migrating software is a frequent task of OEMs, Tier-1s and engineering service providers in cooperation with the silicon manufacturers. With a strong focus on the software architecture, INCHRON and Arm teamed up to provide a deep understanding of how an application would run on a new SoC, and to anticipate the resource consumption.

The solution utilizes trace analysis and model-based simulation. Users will significantly lower the risk of choosing the wrong device (picture shows Arm M33 to R52 migration example).

Use Cases

- **Software migration:** Most new systems start with a lot of pre-existing software. The software is refactored and combined with new software. Together it will be deployed to a SoC of choice. New count and types of cores have to be taken into account. Changes in operating systems and communication paths have to be considered.
- **SoC selection:** By applying the software migration above to different SoCs during the SoC selection process, the SoCs can be compared to each other with regards to the specific software.

Solution

- With a model-based approach the **software architecture** can be **migrated** and tested before hardware and software is available. We use virtual integration and timing-aware traces of existing software to derive a timing model.
- The software architecture of existing applications and new applications is combined and **mapped** to a new device. **Scaling** of execution time is a step of the process.
- As a result, you will be able to evaluate **core load** and other resource consumptions as well as **end-to-end timing** of **event-chains**. Further KPIs are response time of tasks/ISRs, start-to-start jitter and more. This works even in non-periodic systems.
- A **public library** of Arm-related and SoC-related timing models is available for users and contributors.
- INCHRON provides the chronSUITE model-based simulation tool and INCHRON expert services.

Benefits

- **Avoid cost and effort** significantly in contrast to picking the wrong SoC.
- **Mitigate risks** by considering the software architecture and event-chains during SoC choice.

„It is easy to migrate your existing applications to new Arm platforms." – John Kourentis, Arm Ltd	„We enable informed SoC and software architecture decisions in an early stage." – Matthias Dörfel, CTO INCHRON AG

📅 Schedule a meeting with us to get more information and enjoy a demo!

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