Get started on Arm

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Guide

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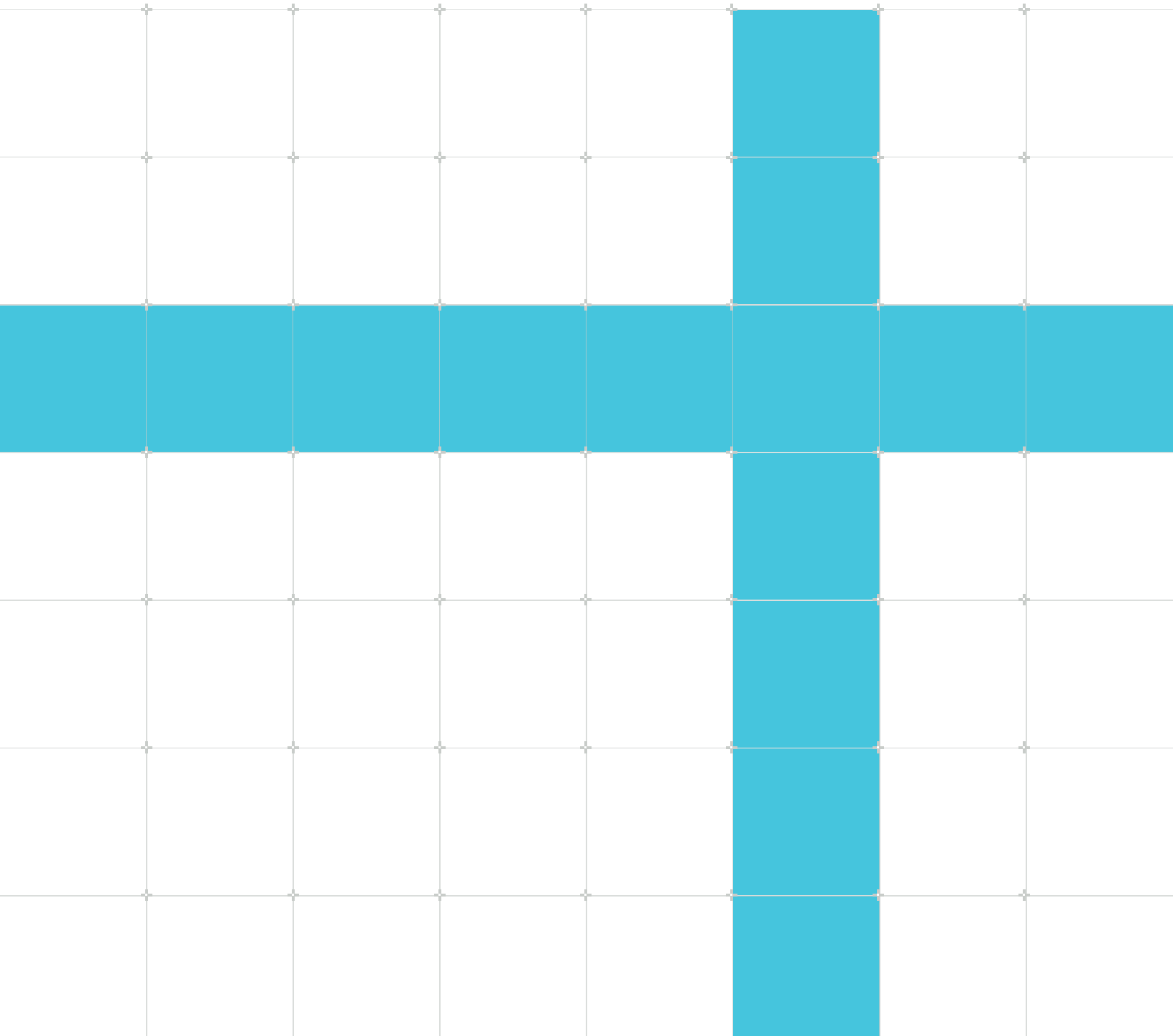

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Release information

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0100-01	21 February 2022	Non-Confidential	First release

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Contents

1 Get started on Arm

Use this guide to find out more about getting started on 64-bit Arm (AArch64), including:

- Where to get Arm technology (hardware and ported software)
- How to port your own applications to 64-bit Arm
- How to optimize the efficiency of software when on 64-bit Arm

2 Where can I get Arm hardware?

Arm's ecosystem partners are delivering best-in-class converged infrastructure building block products and services.

Here you can find a sampling of the growing list of leading companies within the Arm ecosystem delivering hardware, software, and professional services to help you realize your market goals:

- HPC Hardware

These partners help you add your own unique value to the Arm architecture.

Also, see this Linaro blog on running Linux on Arm-based laptops.

3 Get started with the OpenHPC software stack

OpenHPC is a collaborative community effort to provide common, verified set of open source packages for HPC deployments. OpenHPC provides a variety of common, pre-built ingredients required to deploy and manage an HPC Linux cluster including provisioning tools, resource management, I/O clients, runtimes, development tools, and a variety of scientific libraries.

Arm is a silver member of OpenHPC, and Arm-based machines are used in the OpenHPC build infrastructure. OpenHPC's latest release, v1.3.3, supports builds for 64-bit Arm (AArch64).

To get started with OpenHPC:

1. Visit the OpenHPC website and learn all about the various activities involving OpenHPC.
2. Join the OpenHPC Community and visit the GitHub developer resource and downloads sections to get pre-built binaries and install recipes for Arm AArch64 OpenHPC packages. OpenHPC provides builds that are compatible with and tested against CentOS 7.4 and SUSE Linux Enterprise Server 12 SP3.
3. Join the OpenHPC mailing lists and learn about posting questions, reporting issues and staying aware of community announcements.

If you have a problem with a 64-bit Arm (AArch64) OpenHPC package, please raise the issue with the openhpc-users mailing list. For more information is also available within the OpenHPC FAQs.

4 Get Arm-ported HPC applications

For a list of libraries, benchmarks and applications already ported (or being ported) to Arm, see the our porting and tuning guides along with the Arm GitLab repository. The Arm GitLab repository is maintained by Arm, but is community driven and anyone can join and contribute.

In the GitLab repository you can find a summary table of ported packages and start contributing. You can also download the latest porting status information for each package.

Figure 4-1: Works on Arm

Another source of finding Arm-ported software is by searching Works on Arm. Works on Arm is a collaborative project to expand the ecosystem for Armv8 in the datacenter. Works on Arm is doing this by providing CI/CD infrastructure to a wide variety of software projects, and building community around the architecture.

5 Port and optimize your application using Arm tools

The Arm Allinea Studio is a custom-built studio for migrating your high performance applications to Armv8-A hardware. Achieve optimum efficiency with a specifically tuned studio of everything you will need from compilers and libraries to parallel debugger and profilers.

In the studio, you get the following tools:

- Arm Compiler - Linux user-space C/C++ and Fortran compilers for best-in-class performance on Armv8-A architecture and tuned for common HPC workloads and applications.
- Arm Performance Libraries - Commercial 64-bit Armv8 math libraries for optimal serial and parallel performance on Armv8-A architecture. Built in collaboration with Arm's silicon partners and validated with the NAG test suite.
- Arm Forge - Integrated suite for debugging, profiling and optimization which supports the latest Armv8-A architecture.
- Arm Performance Reports - Analyze your application performance on the latest Armv8-A architecture.

A recent blog describes how this suite of tools enables a smooth transition when porting HPC applications to the Armv8-A architecture.

See our porting and tuning guides for detailed instructions to build many common scientific applications, benchmarks and libraries using Arm HPC tools suite.

For more information on Arm HPC tools, see our tools landing page.

You can also get your free Arm tools for Linux trial and download, evaluate, and buy Arm's industry-leading HPC Tools.

6 Get support

Our team of highly qualified Arm experts are there for advice and debug assistance to support you in using Arm's suite of High Performance Computing (HPC) tools.

Request support from our support team or view our tool documentation:

- Get support
- Help and tutorials
- Training

7 Related information

Here are some resources related to material in this guide:

- For more information about Arm in HPC, see our FAQs.
- Learn more about HPC tools from Arm.