Multiplatform Images

in Docker-land

What is an image?

the executable

in a containerized environment

configuration files

the executable

/etc/passwd

support libraries

shared objects

IT WORKS ON MY MACHINE

THEN WE'LL SHIP YOUR MACHINE
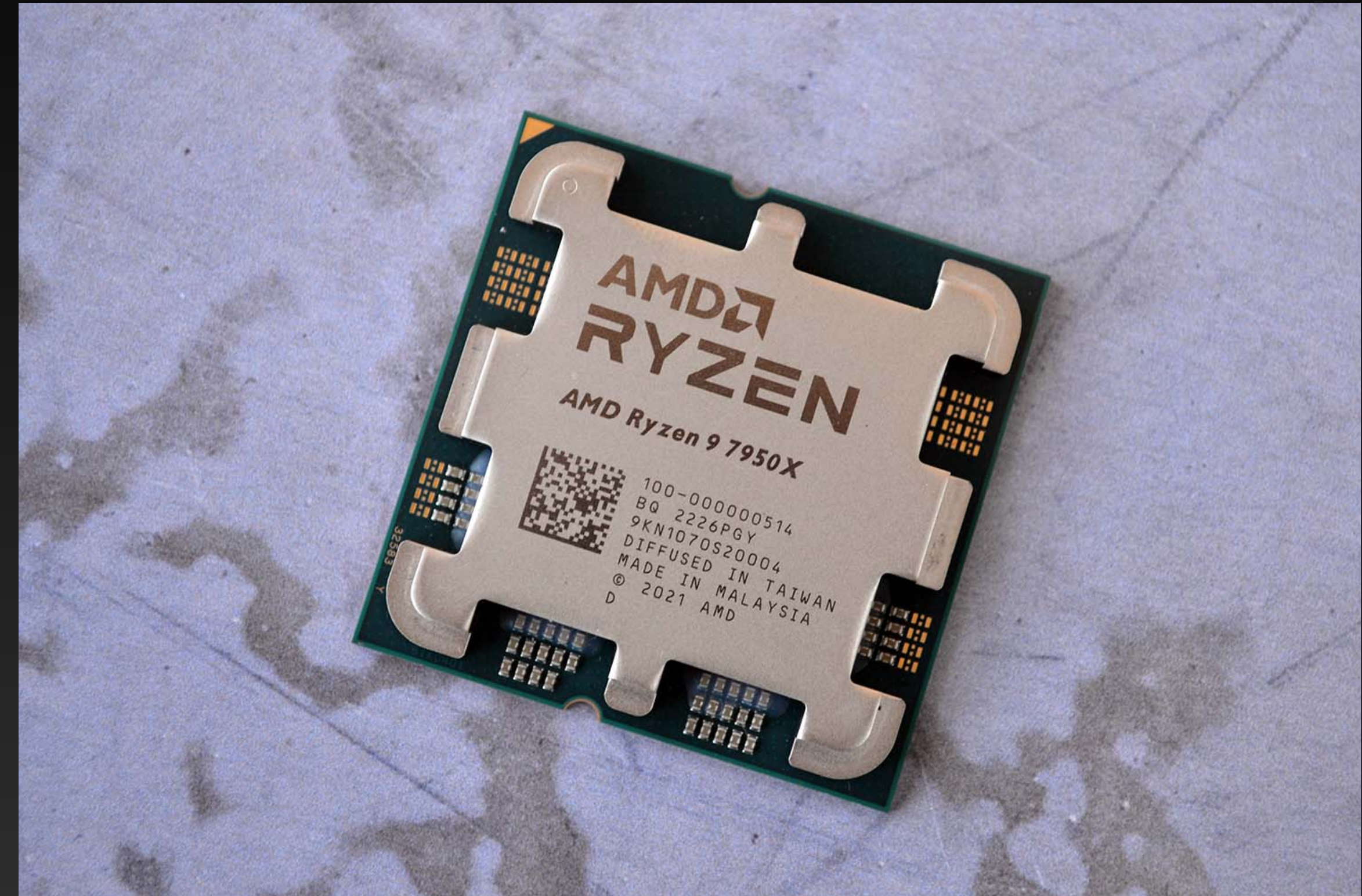
AND THAT IS HOW DOCKER WAS BORN

the executable

What's an executable?

machine instructions

binary code

11 101 011   XCHG

Exchange H&L registers with D&E registers

same thing today
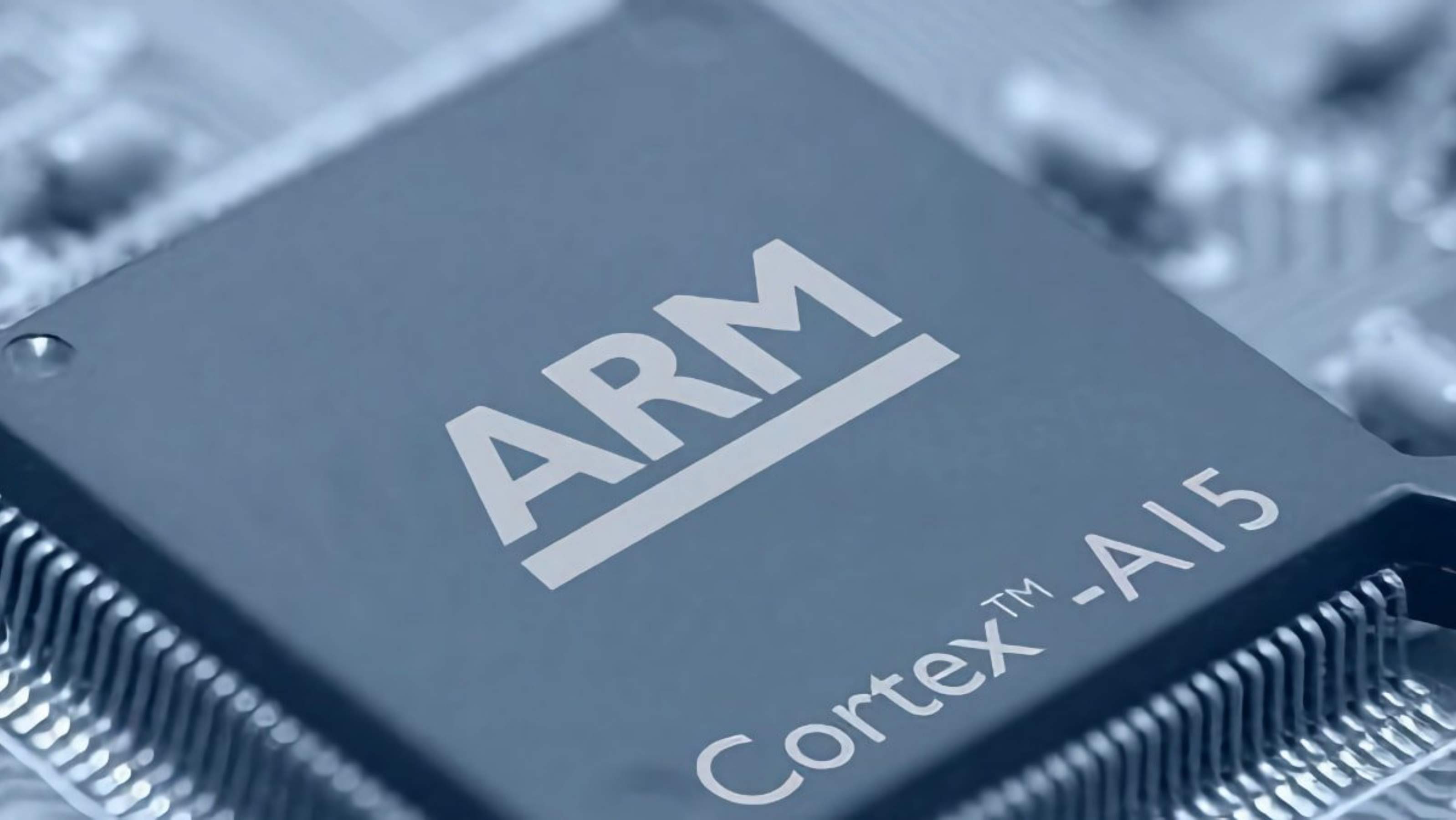
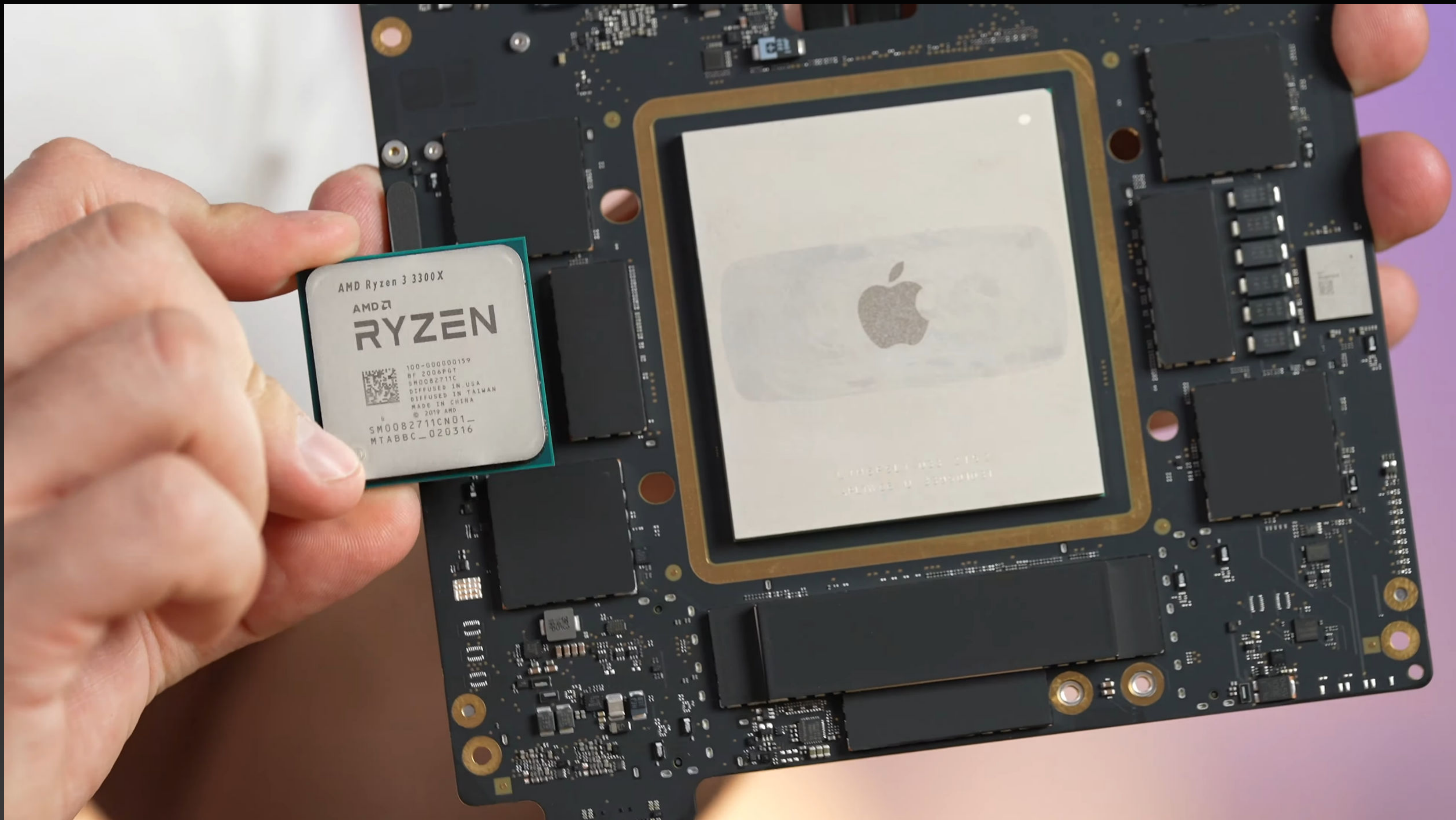1011 1010 0011 0111   XOR

Logical exclusive OR of 64-bit destination register 81/6 with sign-extended 32-bit immediate value and store result in the destination

amd64

arm64

1011 1010 0011 0111

🤔

why Apple software vendors started
making multi-platform executables

"universal binaries"

```
docker image build --tag my-image --file docker/Dockerfile .
```
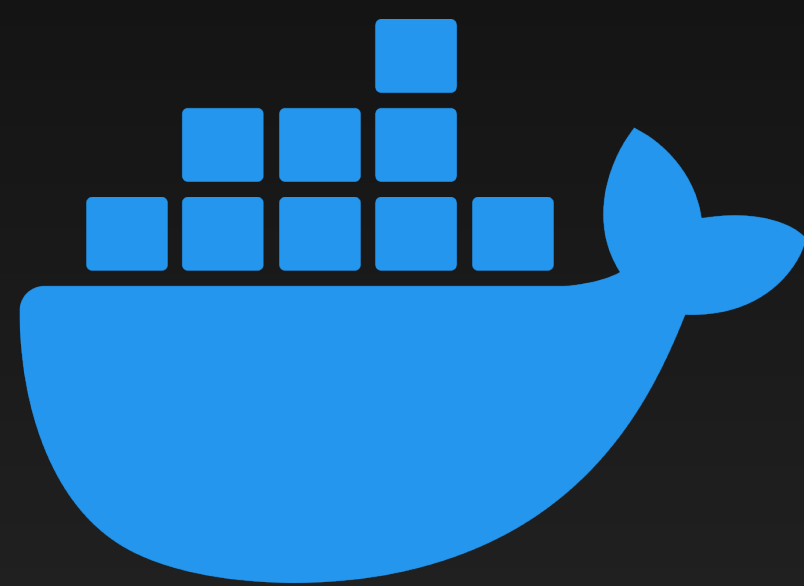
docker image inspect my-image | egrep Architecture

"Architecture": "amd64"

"Architecture": "arm64"

universal binary

but for Docker images

docker buildx

QEMU

Supported Platforms

- amd64

- arm64

- i386

- riscv64

- ppc64le

- mips64, mips64le

- s390x

I have to learn docker buildx?

No!

Let GitHub Actions do it for you

```
1  ----
2  name: 🔑🖼️ ProxyCrypt Imaging
3  on:
4      push:
5          branches:
6              -   main
7          paths:
8              -   'docker/**'
9              -   'etc/**'
10 jobs:
11     imaging:
12         name: 🖼️ Imaging
13         runs-on: ubuntu-latest
14         steps:
15             -
16                 name: 💳 Docker Hub Identification
17                 uses: docker/login-action@v2
18                 with:
19                     username: ${{secrets.DOCKERHUB_USERNAME}}
20                     password: ${{secrets.DOCKERHUB_TOKEN}}
21             -
22                 name: 📚 Repository Checkout
23                 uses: actions/checkout@v3
24             -
25                 name: 🏛️ QEMU Multiple Machine Emulation
26                 uses: docker/setup-qemu-action@v2
27             -
28                 name: 🏭 Docker Buildx
29                 uses: docker/setup-buildx-action@v2
30             -
31                 name: 📦 Image Construction and Publication
32                 uses: docker/build-push-action@v4
33                 with:
34                     context: .
35                     file: docker/Dockerfile
36                     platforms: linux/amd64,linux/arm64
37                     push: true
38                     tags: ${{secrets.DOCKERHUB_USERNAME}}/proxycrypt:latest
39 ...
```

nasapds/registry-api-service ☆

By nasapds • Updated 3 days ago

⬇ Pulls 222

Image

Overview   **Tags**

Sort by   Newest ▼   🔍 Filter Tags

TAG

latest

`docker pull nasapds/registry-api…` 📋

Last pushed **3 days ago** by nasapds

DIGEST	OS/ARCH	COMPRESSED SIZE ⓘ
7f4ffca322dd	linux/amd64	296.38 MB
fe91eed1016a	linux/arm64	293.61 MB

"But I was using Docker on my new M1 Mac
even before multi-platform images!"

Rosetta 2

Rosetta 2 is not included anymore by default

If you want it:

just double-click on any non-Universal binary

softwareupdate --install-rosetta