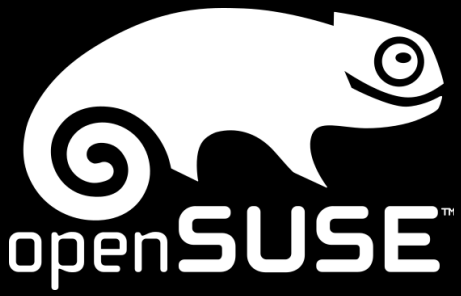
AMD
ROCm

ROCm Installation

ROCm Tutorial – Part 2

Part 2: ROCm Installation



kubernetes

Introduction

1. This modules covers some basics regarding the installation of ROCm

2. It serves to provide information about what are the different options to install ROCm

3. We will not be going over how to install ROCm
   - The tutorial system provided to you will already have ROCm installed

4. If you wish to install ROCm on any system you own detailed instructions are available here (https://rocmdocs.amd.com/en/latest/Installation_Guide/Installation-Guide.html)

Online Guides

1. Information/Commands regarding the installation of ROCm for different OS natively is available here (https://rocmdocs.amd.com/en/latest/Installation_Guide/Installation-Guide.html)

2. Using ROCm with Docker (https://github.com/RadeonOpenCompute/ROCm-docker)

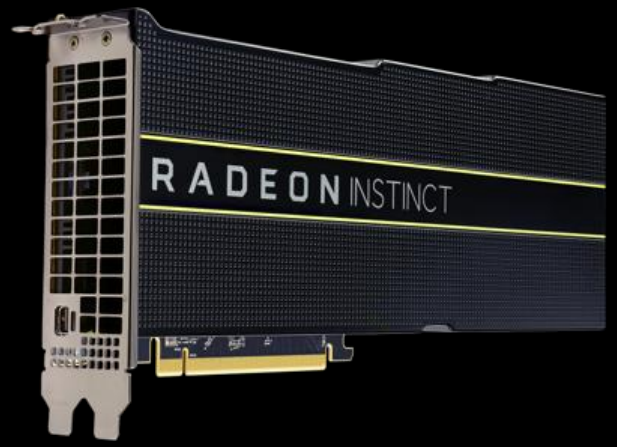
3. Using ROCm with Singularity (https://sylabs.io/guides/3.5/user-guide/gpu.html)

4. Using ROCm with Kubernetes (https://github.com/RadeonOpenCompute/k8s-device-plugin)

ROCm Hardware Requirements

- ROCm currently supports the following AMD GPUs:

- Radeon GPUs
  - R9 Nano & R9 Fury X (Fiji)
  - R9 480 & R9 580 (Polaris 10)
  - RX Vega 56 & RX Vega 64 (Vega 10)
  - Radeon VII (Vega 20)
- Radeon Instinct GPUs
  - MI8 (Fiji)
  - MI6 (Polaris 10)
  - MI25 (Vega 10)
  - MI50 & MI60 (Vega 20)



ROCm Software Requirements

1. Following Linux based OS's are supported under ROCm

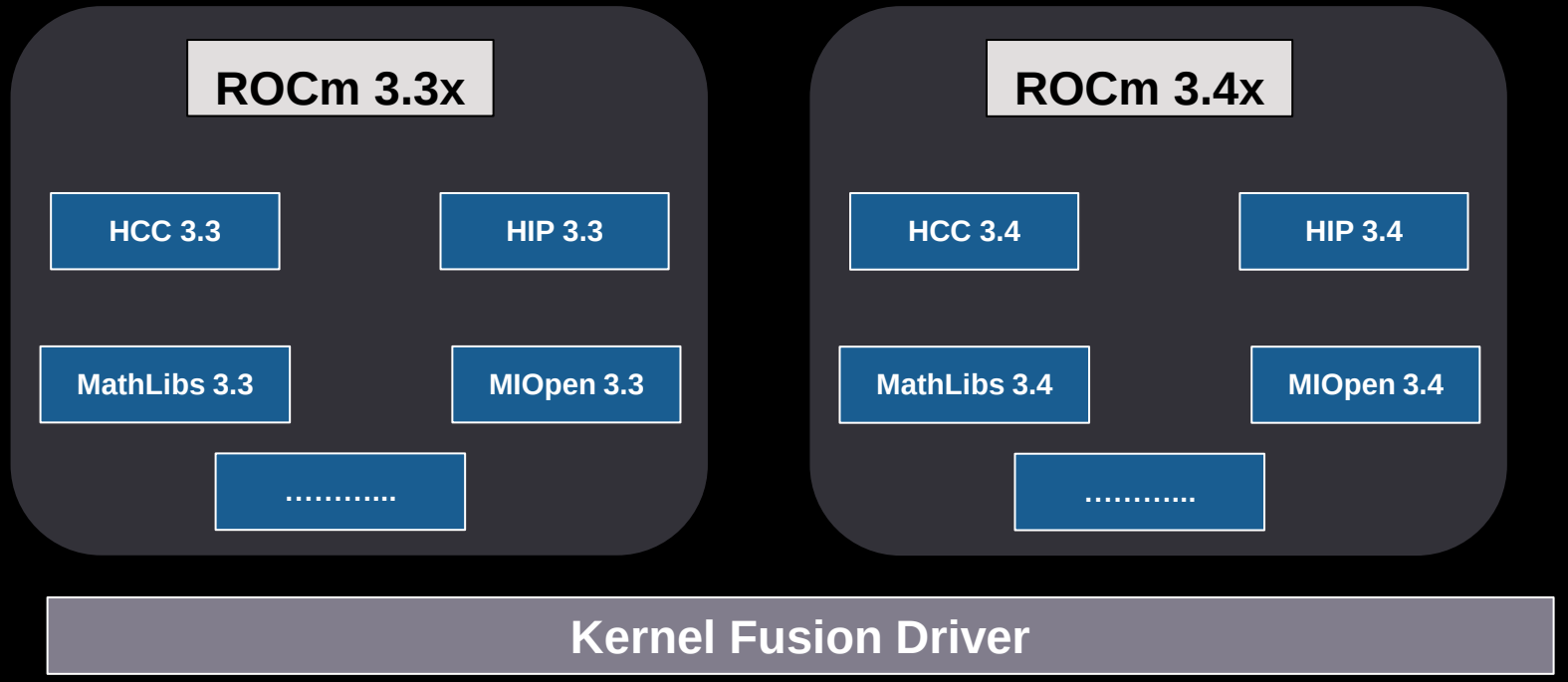
   - Ubuntu 16.04.6 (Kernel 4.15)
   - Ubuntu 18.04.3(Kernel 5.0)
   - CentOS v7.7 (Using devtoolset-7 runtime support)
   - RHEL v7.7 (Using devtoolset-7 runtime support)
   - SLES15 SP1

ROCm Driver Considerations

	rock-dkms	amdgpu
Pros	○ Supports latest GPU features ○ Tested thoroughly on all supported Linux distros ○ Includes latest GPU firmware ○ All supported GPUs enabled regardless of Linux kernel version	○ Includes the latest Linux features ○ Can work with ROCm unsupported distros ○ Can also work with custom built Linux kernels
Cons	• Not supported on some Linux distros. • No support for Linux kernel > 5.4	• May not support latest GPU features • Testing limited • IPC and RDMA not enabled • Limits available GPU memory • GPU firmware is not the latest

Multi-Versioning Support

- Multiple versions of ROCm can be installed on the same system
- This enables users to use the toolchain and libraries that best suits their needs



Multi-Versioning Support Cont'd

1. The multiple versions needs to be installed from versioned packages

2. The multiple versions will be installed in /opt/rocm-# where "#" represents the version number

3. Multi-version installation is not backward-compatible.

4. A single instance package cannot co-exist with a multi instance package

   - Therefore, uninstall all rocm components before installing a multi-versioned package

Container Support

1. Containers are being widely used in delivering microservices on the cloud
2. They have virtually no performance-overhead over running applications natively
3. ROCm provides container support for the following
    - Docker
    - Synergy
    - Kubernetes
4. Support for more containers will be added in the future

Conclusion

We have looked at different possible options available for installing ROCm

ROCm provides support for all popular OS’s and container frameworks

In the next module, we will be taking a deep dive on how to program a ROCm enabled GPU using HIP