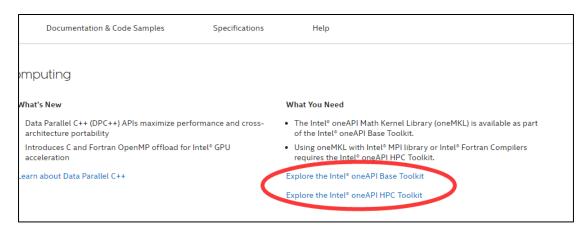
一、在官网

https://software.intel.com/content/www/us/en/develop/tools/oneapi/components/onemkl.html 下载 linux 系统版本的两个安装包:

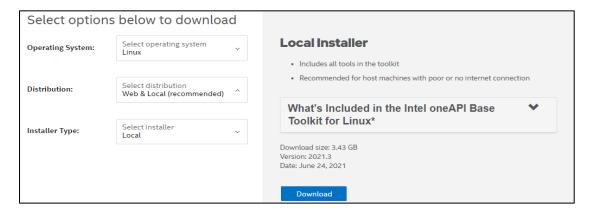
- 1. Intel® oneAPI Base Toolkit
- 2. Intel® oneAPI HPC Toolkit

下载过程示意图如下:



This toolkit is an add-on to the Intel® oneAPI Base Toolkit, which is required for full functionality. It also includes access to the Intel® Distribution for Python*, the Intel® oneAPI DPC++/C++ Compiler, powerful data-centric libraries, and advanced analysis tools.





二、安装 1 BaseKit p 2021.3.0.3219 offline

- 1. 界面提示安装方法: sudo sh l_BaseKit_p_2021.3.0.3219_offline
- 2. 命令行(非界面)提示安装方法教程:

 $\frac{https://software.intel.com/content/www/us/en/develop/documentation/installation-guide-for-intel-oneapi-toolkits-linux/top/installation/install-with-command-line.html#install-with-command-line}{} \\$

- 3. 命令为: sudo sh l_BaseKit_p_2021.3.0.3219_offline.sh -a --silent --list-products
- 4. 安装成功会显示如下图的信息,如果显示 failed 则重启计算机再尝试安装。

```
yuanjianlong@DESKTOP-NNDIC9P:/mnt/d/softwarePackages/
yuanjianlong@DESKTOP-NNDIC9P:/mnt/d/softwarePackages/
yuanjianlong@DESKTOP-NNDIC9P:/mnt/d/softwarePackages} sudo sh ./1_BaseKit_p_2021.3.0.3219_offline.sh -s -a --silent --eula accept
[sudo] password for yuanjianlong:
QStandardPaths: XDG_RUNTIME_DIR not set, defaulting to '/tmp/runtime-root'
Checking system requirements..
Done.

Wait while the installer is preparing...
Done.

Launching the installer...
QStandardPaths: XDG_RUNTIME_DIR not set, defaulting to '/tmp/runtime-root'
XDG Utils package is not installed
Intel® Virume(TMD Profiler requires XDG Utils for graphical user interface, it can be installed with ⟨br/⟩ ⟨b⟩sudo apt-get install xdg-utils ⟨/b⟩ on Ubuntu / Debian ⟨br/⟩⟨b⟩sudo zypper install xdg-utils ⟨/b⟩ on SUSE ⟨br/⟩⟨b⟩sudo dnf install xdg-utils ⟨/b⟩ on CentOS / RHE
L / Fedora
Intel® Graphics Compute Runtime for OpenCL™ not found.
You have no relevant GPU driver. If you are going to develop and run GPU-accelerated applications on this system, please check the ⟨a h ref="inttps://software.intel.com/content/www.us/en/develop/documentation/installation-guide-for-intel-oneapi-toolkits-linux/top/install-intel-gpu-drivers.html "installation guide⟨⟨a⟩ for instructions on the GPU drivers. ⟨br/⟩Otherwise, you can ignore the warning and continue the installation as is: the product can still be used with CPU.

Start installation as successfully completed
Log file: /opt/intel/oneapi/logs/installer.install.intel.oneapi.lin.basekit.product, v=2021.3.0-3219.2021.09.10.15.48.04.842595.10g
yuanjianlong@DESKTOP-NNDIC9P:/mnt/d/softwarePackages$
```

三、安装 1_HPCKit_p_2021.3.0.3230_offline.sh

- 1. 界面提示安装方法: sudo sh l_HPCKit_p_2021.3.0.3230_offline.sh
- 2. 命令行(非界面)提示安装方法教程:

https://software.intel.com/content/www/us/en/develop/documentation/installation-guide-for-intel-oneapi-toolkits-linux/top/installation/install-with-command-line.html#install-with-command-line with-command-line with-command-lin

- 3. 命令为: sudo sh./l HPCKit p 2021.3.0.3230 offline.sh -s -a --silent --eula accept
- 4. 安装成功会显示如下信息,如果显示 failed 则重启计算机再尝试安装。

```
yuanjianlong@DESKTOP-NWDIC9P:/mnt/d/softwarePackages$ sudo sh ./1_HPCKit_p_2021.3.0.3230_offline.sh -s -a --silent --eula accept
QStandardPaths: XDG_RUNTIME_DIR not set, defaulting to '/tmp/runtime-root'
Checking system requirements...
Done.
Wait while the installer is preparing...
Done.
Launching the installer...
QStandardPaths: XDG_RUNTIME_DIR not set, defaulting to '/tmp/runtime-root'
Start installation flow...
Installed Location: /opt/intel/oneapi Installation has successfully completed
Log file: /opt/intel/oneapi/logs/installer.install.intel.oneapi.lin.hpckit.product,v=2021.3.0-3230.2021.09.10.16.03.56.561029.10g
yuanjianlong@DESKTOP-NNDIC9P:/mnt/d/softwarePackages$
```

四、设置环境变量

source ./opt/intel/oneapi/setvars.sh

显示如下信息:

```
yuanjianIong@DESKTOP-NDDICPF:/$ source ./opt/intel/oneapi/setvars.sh

:: initalizing oneAPI environment ...
    -bash BASH_VERSION = 4.4.20(1)-release
:: advisor -- latest
:: col -- latest
:: cole -- latest
:: compiler -- latest
:: dal -- latest
:: debugger -- latest
:: debugger -- latest
:: dev-utilities -- latest
:: devutilities -- latest
:: dpopp-ct -- latest
:: dpopp-ct -- latest
:: inspector -- latest
:: inspector -- latest
:: intelpython -- latest
:: ippc -- latest
:: ippc -- latest
:: itac -- latest
:: mkl -- latest
```

五、检查是否安装成功

1. 在终端输入 mpirun, 显示:

```
Global options (passed to all executables):
  Global environment options:
-genv {name} {value}
-genvlist {env1, env2,...}
                                                                           environment variable name and value
environment variable list to pass
do not pass any environment variables
pass all environment variables not managed
by the launcher (default)
         -genvnone
-genvall
   Other global options:

-f {name}

-hosts {host list}
                                                                           file containing the host names comma separated host list
  Other local options:
-n/-np {value}
{exec_name} {args}
                                                                           number of processes executable name and arguments
Hydra specific options (treated as global):
                                                                            launcher to use (ssh slurm rsh 11 sge pbsdsh pdsh srum 1sf blaunch qrsh fork) executable to use to launch processes enable or disable X forwarding
       -launcher
-launcher-exec
-enable-x/-disable-x
   Resource management kernel options:
-rmk resource management kernel to use (slurm 11 1sf sge pbs cobalt)
   Processor topology options:
-bind-to
                                                                           process binding
process mapping
memory binding policy
      ther Hydra options:

-verbose
-info
-print-all-exitcodes
-ppn
-prepend-rank
-prepend-pattern
-outfile-pattern
-errfile-pattern
-nameserver
-disable-auto-cleanup
-disable-hostname-propagation
-localhost
-usize
    Other Hydra options:
                                                                          verbose mode
build information
print exit codes of all processes
processes per node
prepend rank to output
direct stdout to file
direct stdout to file
direct stderr to file
name server information (host:port format)
don't cleanup processes on error
let MPICH auto-detect the hostname
local hostname for the launching node
universe size (SYSIEM, INFINITE, <value>)
                                                                            show help message for the specific option
   Global options:
       Other Hydra options:
       ther Hydra options:
-iface network interface to use
-s (spec) redirect stdin to all or 1,2 or 2-4,6 MPI processes (0 by default)
-silent-abort do not print abort warning message
-nolocal avoid running the application processes on the node where mpiexec.hydra started
-tune (binary file) defines the name of binary tuning file
-print-rank-map print rank mapping
  ntel(R) MPI Library, Version 2021.3 Build 20210601 (id: 6f90181f1)
opyright 2003-2021 Intel Corporation.
```

2. 在终端输入: ifort -v

```
vuanjianlong@DESKTOP-NNDIC9P:/$ ifort -v
ifort version 2021.3.0
yuanjianlong@DESKTOP-NNDIC9P:/$
```

六. 常见问题

1. 问题:在新终端上无法执行 mpirun 推测原因:环境变量设置不正确 解决方案:

1) 在终端输入: vi ~/.bashrc

2) 在底部加上环境变量语句:

export INTEL_PATH=/opt/intel/oneapi/mpi/2021.3.0 export PATH=\$PATH:\$INTEL_PATH/bin

- 3)保存并退出~/.bashrc
- 4) 环境变量生效, 执行:

source ~/.bashrc mpicc

Created by Jianlong Yuan 2021.09.13