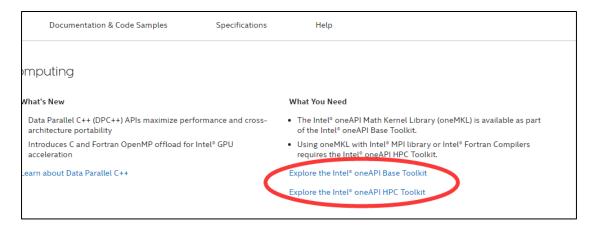
一、在官网

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:

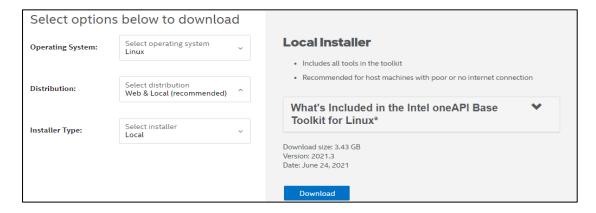
- 1. Intel® oneAPI Base Toolkit
- 2. Intel® oneAPI HPC Toolkit

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. 命令为: sudo sh 1_BaseKit_p_2021.3.0.3219_offline.sh -s -a --silent --eula accept
- 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® Viune(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. 命令为: sudo sh./l_HPCKit_p_2021.3.0.3230_offline.sh -s -a --silent --eula accept
- 2. 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-NNDIC9P:/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...
Installation flow...
Installed Location: /opt/intel/oneapi / Installed Location: /opt/intel/oneapi / Installed Location: /opt/intel/oneapi / Installed flogs/installer.installe.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:

五、检查是否安装成功

1. 在终端输入 mpirun, 显示:

```
sage: ./mpiexec [global opts] [local opts for execl] [execl] [execl args] : [local opts for exec2] [exec2] [exec2 args] : ...
  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)
         genvall
  Other global options:

-f {name}

-hosts {host list}
                                                                            file containing the host names comma separated host list
  ocal options (passed to individual executables):
  Other local options:
-n/-np {value}
{exec_name} {args}
                                                                             number of processes executable name and arguments
  ydra specific options (treated as global):
   Launch options:
                                                                             launcher to use (ssh slurm rsh 11 sge pbsdsh pdsh srun 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:
                                                                             .
resource management kernel to use (slurm 11 lsf sge pbs cobalt)
   Processor topology options:
-bind-to
-map-by
-membind
                                                                             process binding
process mapping
memory binding policy
  Other Hydra options:
                                                                            verbose mode
build information
print exit codes of all processes
processes per node
prepend rank to output
prepend pattern 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 (SYSTEM, INFINITE, <value>)
       -info
-print-all-exitcodes
         -prepend-rank
       -prepend-rank
-prepend-pattern
-outfile-pattern
-errfile-pattern
-nameserver
-disable-hauto-cleanup
-disable-hostname-propagation
         -localhost
Intel(R) MPI Library specific options:
                                                                            show help message for the specific option
  Global options:
-aps
-mps
-gtool
-gtoolfile
       obal options:

-aps Intel(R) Application Performance Snapshot profile
-mps Intel(R) Application Performance Snapshot profile (MPI, OpenMP only)
-gtool tool and rank set
-gtoolfile file containing tool and rank set
-hosts-group (groups of hosts) allows to set node ranges (like in Slurm* Workload Manager)
  Other Hydra options:
-iface
-s <spec>
-silent-abort
                                                                             network interface to use redirect stdin to all or 1,2 or 2-4,6 MPI processes (0 by default) do not print abort warning message avoid running the application processes on the node where mpiexec.hydra started defines the name of binary tuning file print rank mapping
        -nolocal
-tune {binary file}
-print-rank-map
   tel(R) MPI Library, Version 2021.3 Build 20210601 (id: 6f90181f1)
pyright 2003-2021 Intel Corporation.
```

2. 在终端输入: ifort -v

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

六. 常见问题

 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