Installing the Intel® oneAPI FPGA Development Environment

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The oneAPI FPGA development environment requires the following software:

- Intel® oneAPI Base Toolkit
- FPGA Support Package for the Intel® oneAPI DPC++/C++ Compiler
- Quartus® Prime software, including Questa*-Intel® FPGA Edition
    - Quartus® Prime software is optional. It is required for only simulation and generating hardware.
    - CMake (CMake 3.7.2 or newer is required):
- [Recommended, but not required] Visual Studio* Code

IMPORTANT: The Intel® oneAPI FPGA development environment currently only supports Linux* operating systems. If you would like to run the oneAPI FPGA development environment on Windows, Altera recommends that you use a Windows Subsystem for Linux 2 (WSL 2) environment.

Install the oneAPI FPGA Development Environment

You can install the oneAPI FPGA Development Environment using your system package manager. Find guidance for APT, YUM, and Zypper package managers in the sections that follow:

APT (Debian and Ubuntu)

Pre-installation Steps

1. If you are on a company intranet or behind a firewall, set the `http_proxy` and `https_proxy` environment variables to allow APT to access the repository servers using HTTPS protocol.
2. Set up the repository:

```
# download the key to system keyring
wget -O- https://apt.repos.intel.com/intel-gpg-keys/GPG-PUB-KEY-INTEL-SW-PRODUCTS.PUB \
| gpg --dearmor | sudo tee /usr/share/keyrings/oneapi-archive-keyring.gpg > /dev/null

# add signed entry to apt sources and configure the APT client to use Intel repository:
echo "deb [signed-by=/usr/share/keyrings/oneapi-archive-keyring.gpg] https://apt.repos.intel.com/oneapi all
main" | sudo tee /etc/apt/sources.list.d/oneAPI.list
```

3. Update the packages list and repository index:

```
sudo apt update
```

Install

Install the oneAPI base toolkit 2025.0 and the oneAPI FPGA Support Package version 2025.0:

```
sudo apt install intel-oneapi-base-toolkit-2025.0

sudo apt install intel-oneapi-compiler-fpga-2025.0
```

YUM (Red Hat Enterprise Linux)

Pre-installation Steps

1. If you are on a company intranet or behind a firewall, set the `http_proxy` and `https_proxy` environment variables to allow YUM to access the repository servers using HTTPS protocol.
2. Create the YUM or DNF repo file in the /temp directory as a normal user:

```
tee > /tmp/oneAPI.repo << EOF
[oneAPI]
name=Intel® oneAPI repository
baseurl=https://yum.repos.intel.com/oneapi
enabled=1
gpgcheck=1
repo_gpgcheck=1
gpgkey=https://yum.repos.intel.com/intel-gpg-keys/GPG-PUB-KEY-INTEL-SW-PRODUCTS.PUB
EOF
```

3. Move the newly created oneAPI.repo file to the YUM/DNF configuration directory /etc/yum.repos.d:

```
sudo mv /tmp/oneAPI.repo /etc/yum.repos.d
```

Install

Install the oneAPI base toolkit 2025.0 and the oneAPI FPGA Support Package version 2025.0:

```
sudo yum install intel-oneapi-base-toolkit-2025.0
sudo yum install intel-oneapi-compiler-fpga-2025.0
```

Zypper (SUSE Linux Enterprise Server)

Pre-installation Steps

1. If you are on a company intranet or behind a firewall, set the `http_proxy` and `https_proxy` environment variables to allow Zypper to access the repository servers using HTTPS protocol.
2. Set up the repository:
   Add the Intel oneAPI repository public key with the following command:

```
sudo zypper addrepo https://yum.repos.intel.com/oneapi oneAPI
```

   By adding this new repository, Zypper automatically imports the public repo key. For some cases rpm might require explicit key import by:

```
rpm --import https://yum.repos.intel.com/intel-gpg-keys/GPG-PUB-KEY-INTEL-SW-PRODUCTS.PUB
```

Install

Install the oneAPI base toolkit 2025.0 and the oneAPI FPGA Support Package version 2025.0:

```
sudo zypper install intel-oneapi-base-toolkit-2025.0

sudo zypper install intel-oneapi-compiler-fpga-2025.0
```

[Optional] Install Quartus® Prime Prime Software

For simulating your kernel or generating hardware for your device, install and configure your Quartus® Prime software development environment:

1. Install the version (or versions) of Quartus® Prime software for the device family or families that you want to target:

Device Family	Quartus Prime Edition
Agilex™ 5 Agilex™ 7 Stratix® 10 Arria® 10 Cyclone® 10 GX	Quartus® Prime Pro Edition Versions 22.1-24.1
Cyclone® V	Quartus® Prime Standard Edition Version 22.1std or 23.1std Quartus® Prime Lite Edition Version 22.1std or 23.1std

Quartus® Prime Edition Required

Install and license your copy of Quartus® Prime software according to the instructions in Intel® FPGA Software Installation and Licensing.
For more information about installing and configuring Questa*-Intel® FPGA Edition separately from Quartus® Prime software, refer to Questa*-Intel® FPGA Edition Quick-Start Quartus® Prime Pro Edition.

2. Set or update the Quartus® Prime environment variables by following the instructions in Setting Quartus® Prime Environment Variables in Intel® FPGA Software Installation and Licensing.

Uninstall the oneAPI FPGA Development Environment

APT (Ubuntu/Debian)

```
sudo apt autoremove intel-oneapi-base-toolkit-2025.0
```

YUM (Red Hat Enterprise Linux)

```
sudo yum autoremove intel-oneapi-base-toolkit-2025.0
```

Zypper (SUSE Linux Enterprise Server)

```
sudo zypper remove intel-oneapi-base-toolkit-2025.0 --clean-deps
```

Installing Older Packages

If you wish to install an older version of the oneAPI FPGA Development environment, (for example, to use with an older BSP) you can access version 2024.2 of the base toolkit and FPGA Support Package:

```
intel-basekit-2024.2

intel-oneapi-compiler-fpga-2024.2
```

Document Revision History

Date	Version	Changes
2025-05-05	1.0	Initial release.