



EFOP-3.4.3-16-2016-00009

A felsőfokú oktatás minőségének és hozzáférhetőségének  
együttes javítása a Pannon Egyetemen

# EMBEDDED SYSTEM DEVELOPMENT (MISAM154R)



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Updated: 24. Sept. 2020.

SZÉCHENYI 2020



MAGYARORSZÁG  
KORMÁNYA

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BEFEKTETÉS A JÖVŐBE



# 1. INSTALL XILINX VIVADO

Embedded System development environment

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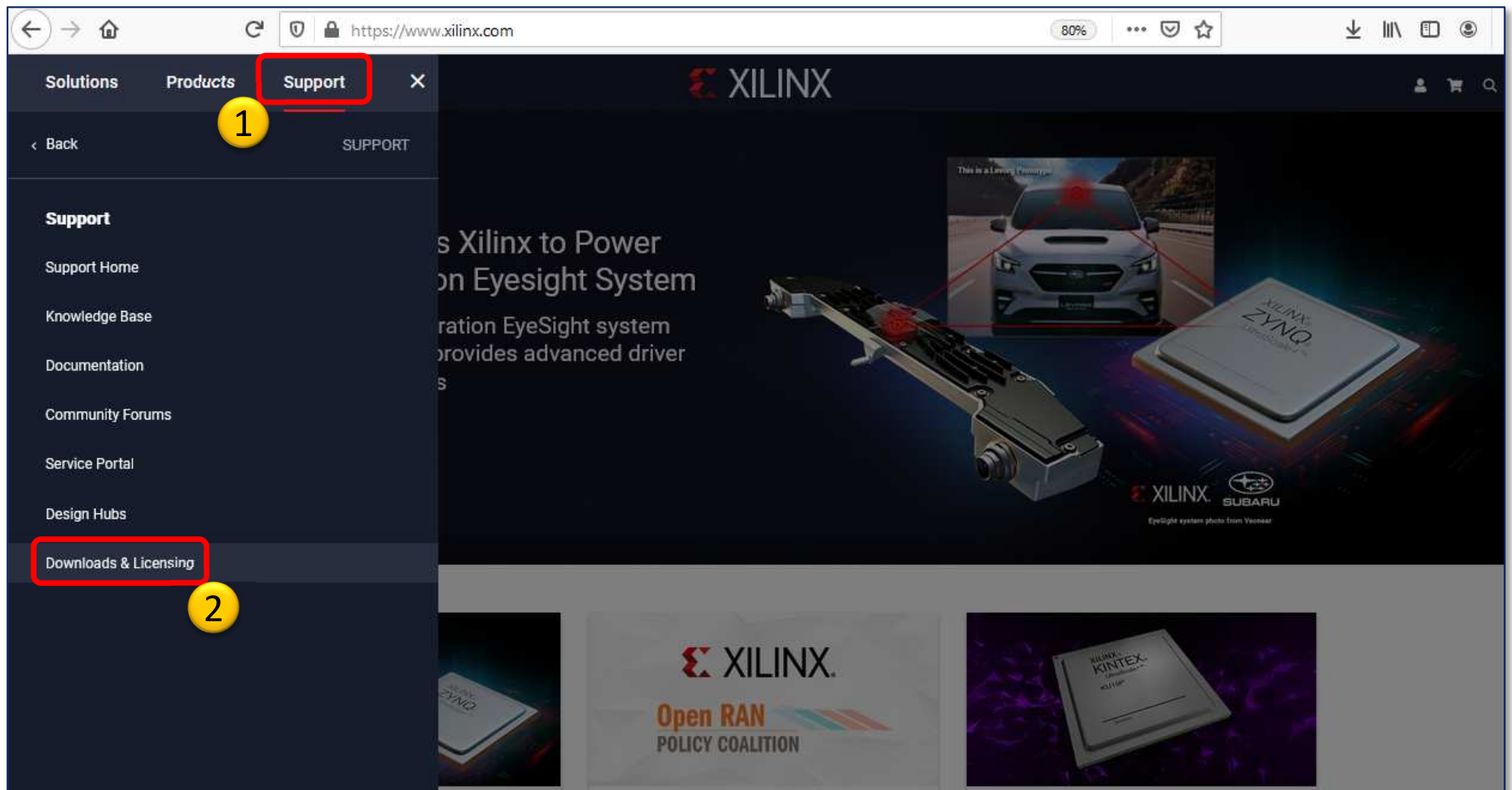
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# Xilinx website

- Visit XILINX official website (Sept. 2020):

 <http://www.xilinx.com>





# Download package

Select [Xilinx Unified Installer 2020.1: Windows Self Extracting Web Installer](#) (EXE - **66.73 MB**)  
LARGE PACKAGE - **OR** - SMALL PACKAGE WEB BASED INSTALLER!

Select [Vivado HLx 2020.1: All OS installer Single-File Download](#) (TAR/GZIP - **35.51 GB**) (Win+Linux)

**Downloads**

**1**

Licensing Help

Alveo Accelerator Card Downloads

Vivado (HW Developer) Vitis (SW Developer) Vitis Embedded Platforms PetaLinux Device Models

**Version**

2020.1

2019.2

SDSoC Archive

SDAccel Archive

SDK/PetaLinux Archive

**Vitis Core Development Kit Update 1 - 2020.1 Product Update**

**Important Information**

This is a common updater. You do not need to re-run it for Vitis if you have already run it for Vivado and vice versa.

Note: Download verification is only supported with Google Chrome and Microsoft Internet Explorer web browsers.

**2**

Download Includes

Download Type	Vitis Core Development Kit
Last Updated	Product Update
Answers	Aug 12, 2020
Documentation	2020.x - Vitis Known Issues
	Release Note
	OS Support Update

Download Xilinx Vitis 2020.1: All OS installer Single-File Download (TAR/GZIP - 35.51 GB)

MD5 SUM Value : b018f7b331ab0446137756156ff944d9

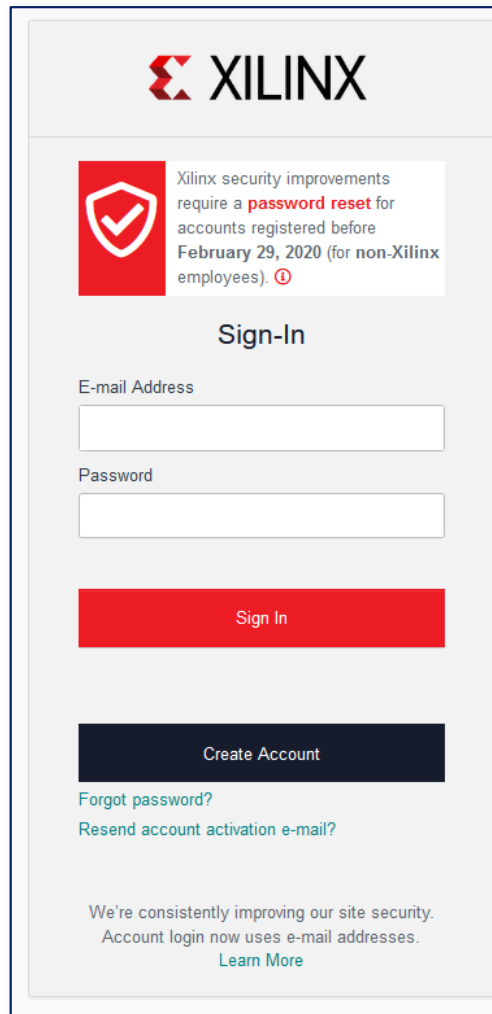
**Download Verification**

Digests Signature Public Key



# Sign into Xilinx webpage

- Sign-in (if you have Xilinx account) or
- Create a new account (free registration with a valid email address)



The image shows the Xilinx login and registration interface. At the top is the Xilinx logo. Below it is a security notice about password resets. The main section is titled 'Sign-In' and contains input fields for 'E-mail Address' and 'Password', followed by a red 'Sign In' button. Below the login section is a dark blue 'Create Account' button. At the bottom are links for 'Forgot password?' and 'Resend account activation e-mail?'. A footer note mentions site security improvements and account login changes, with a 'Learn More' link.

**XILINX**

Xilinx security improvements require a **password reset** for accounts registered before **February 29, 2020** (for non-Xilinx employees). ⓘ

### Sign-In

E-mail Address

Password

Sign In

Create Account

[Forgot password?](#)

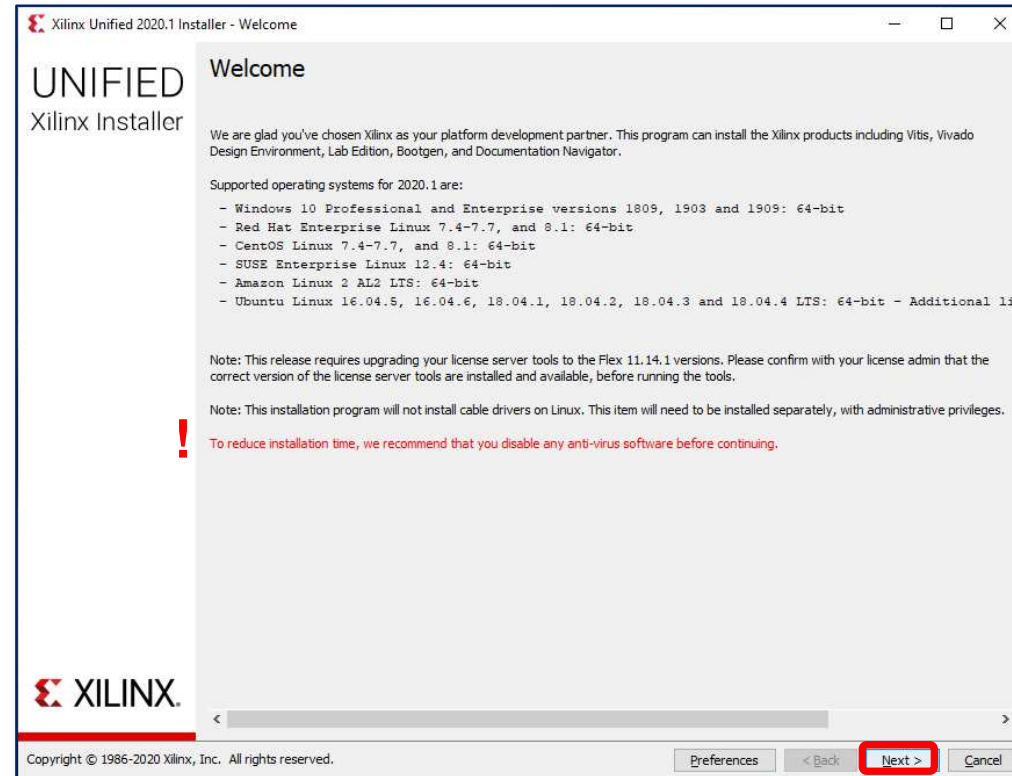
[Resend account activation e-mail?](#)

We're consistently improving our site security.  
Account login now uses e-mail addresses.  
[Learn More](#)



# Run installation

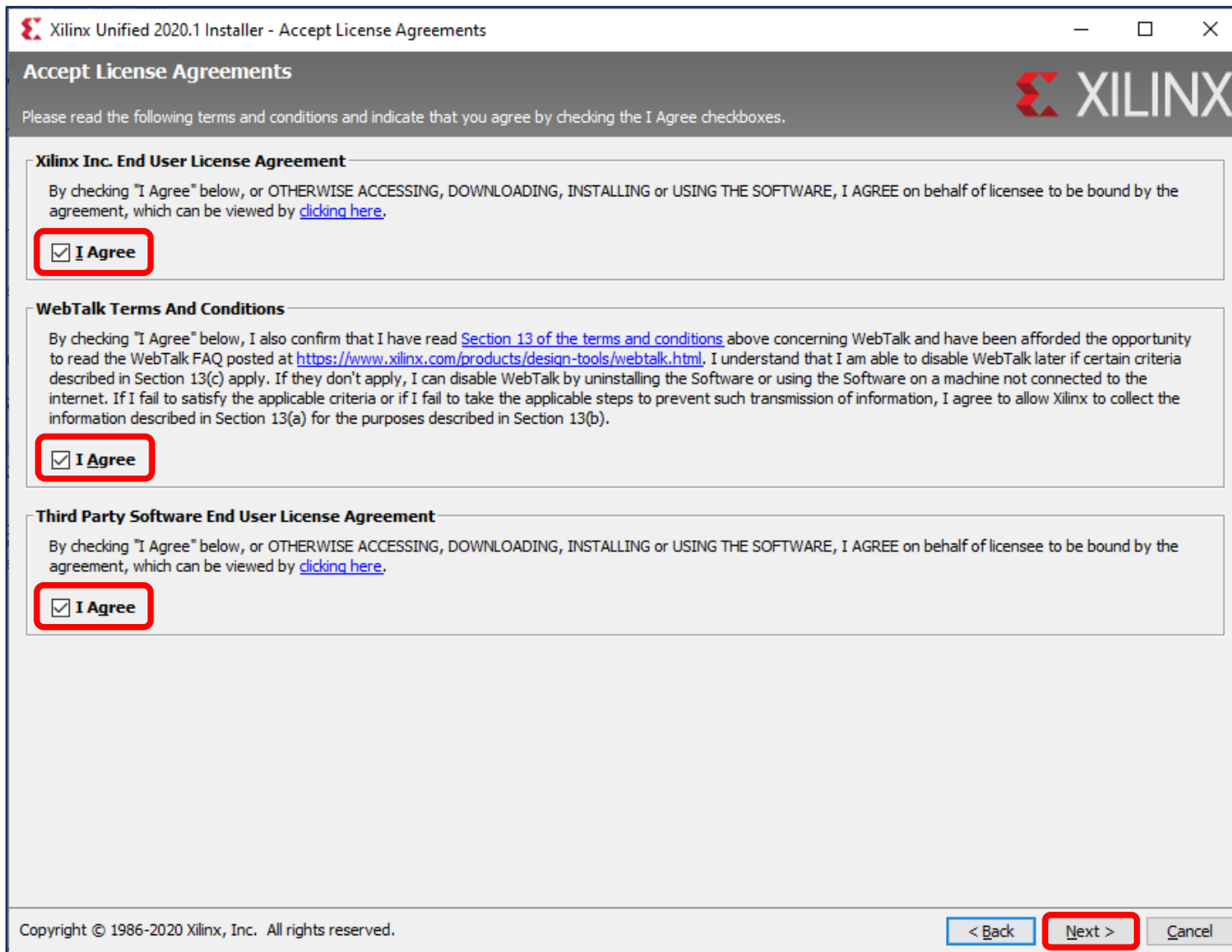
- If you downloaded the [Vivado HLx 2020.1: All OS installer Single-File Download](#) (TAR/GZIP - **35.51 GB**) larger / full install package, then:
  - Unzip and untar the package,
  - Locate and run `xsetup.exe`,





# License agreements

- Check and accept all agreements



Xilinx Unified 2020.1 Installer - Accept License Agreements

**Accept License Agreements**

Please read the following terms and conditions and indicate that you agree by checking the I Agree checkboxes.

**Xilinx Inc. End User License Agreement**

By checking "I Agree" below, or OTHERWISE ACCESSING, DOWNLOADING, INSTALLING or USING THE SOFTWARE, I AGREE on behalf of licensee to be bound by the agreement, which can be viewed by [clicking here](#).

☒ I Agree

**WebTalk Terms And Conditions**

By checking "I Agree" below, I also confirm that I have read [Section 13 of the terms and conditions](#) above concerning WebTalk and have been afforded the opportunity to read the WebTalk FAQ posted at <https://www.xilinx.com/products/design-tools/webtalk.html>. I understand that I am able to disable WebTalk later if certain criteria described in Section 13(c) apply. If they don't apply, I can disable WebTalk by uninstalling the Software or using the Software on a machine not connected to the internet. If I fail to satisfy the applicable criteria or if I fail to take the applicable steps to prevent such transmission of information, I agree to allow Xilinx to collect the information described in Section 13(a) for the purposes described in Section 13(b).

☒ I Agree

**Third Party Software End User License Agreement**

By checking "I Agree" below, or OTHERWISE ACCESSING, DOWNLOADING, INSTALLING or USING THE SOFTWARE, I AGREE on behalf of licensee to be bound by the agreement, which can be viewed by [clicking here](#).

☒ I Agree

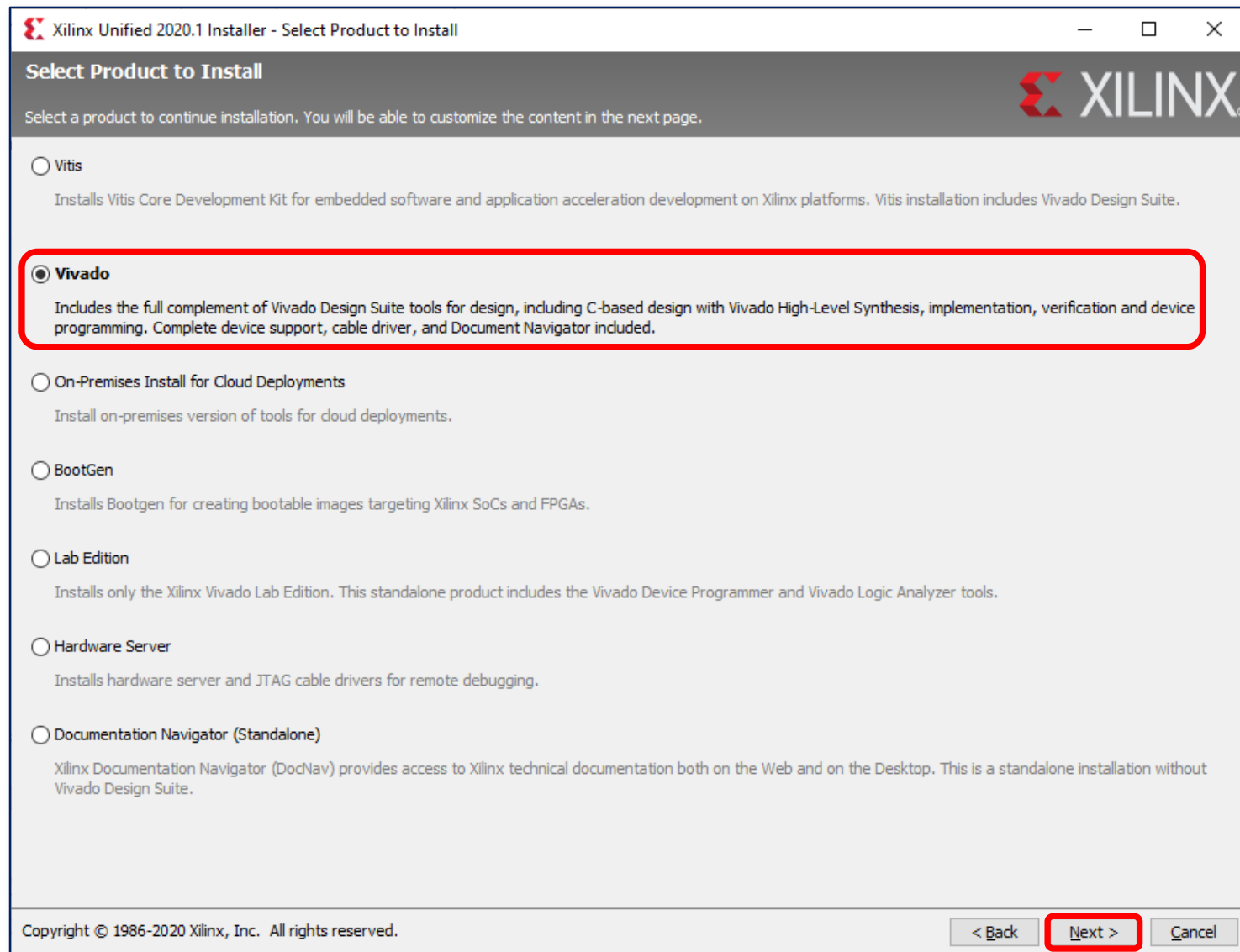
Copyright © 1986-2020 Xilinx, Inc. All rights reserved.

< Back Next > Cancel



# Select product to install - Vivado

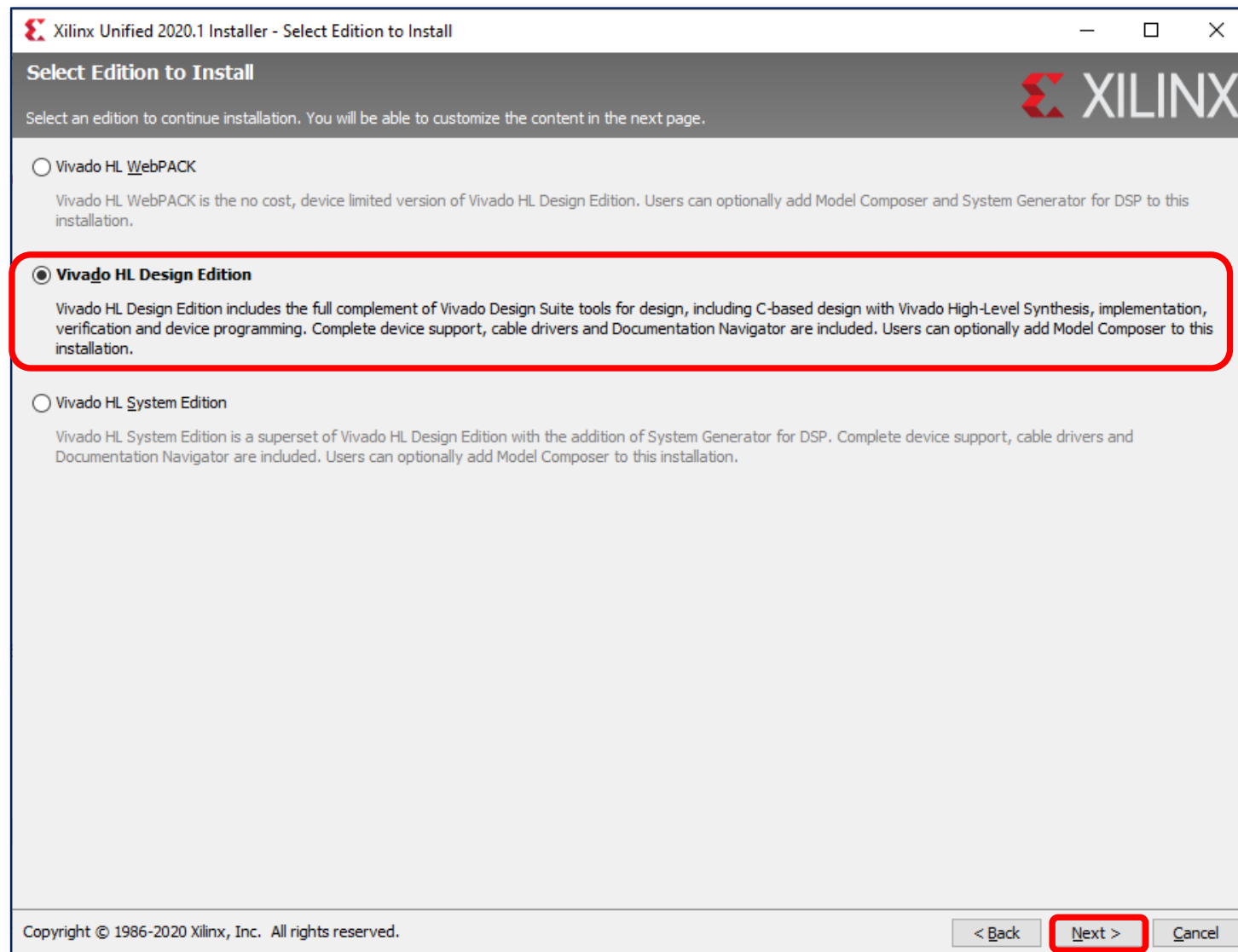
- Vivado : includes Design Suite tools (without Vitis)





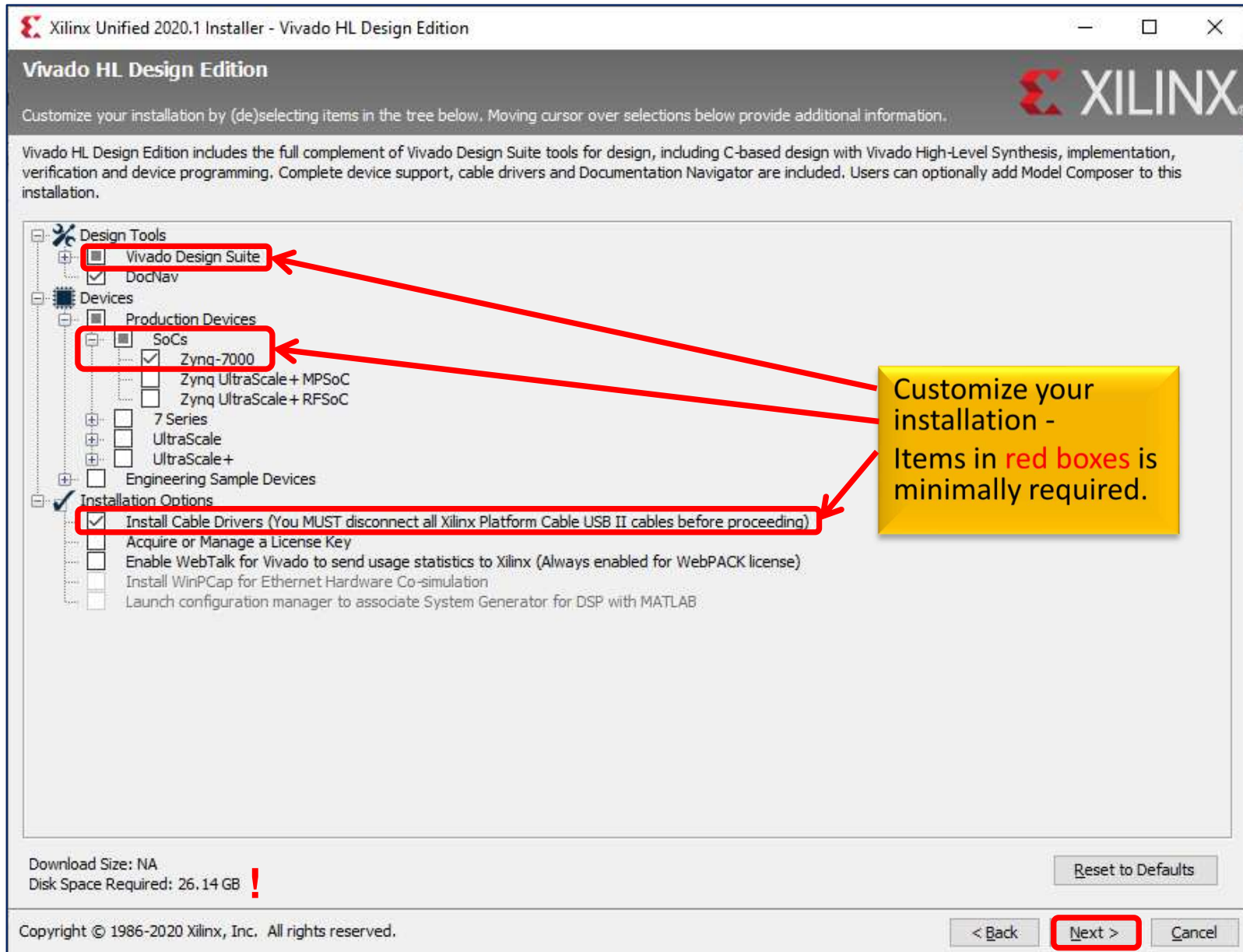
# Select Vivado HL – Design Edition

- Select Vivado HL DE (or Webpack)





# Customize install – VITIS + Vivado





# Destination directory

Xilinx Unified 2020.1 Installer - Select Destination Directory

**Select Destination Directory**

Choose installation options such as location and shortcuts.

**Installation Options**

Select the installation directory

D:\Xilinx

**Installation location(s)**

D:\Xilinx\Vivado\2020.1

C:\Xilinx\DocNav

**Disk Space Required**

Download Size:	NA
Disk Space Required:	26.14 GB !
Final Disk Usage:	23.71 GB
Disk Space Available:	339.59 GB

**Select shortcut and file association options**

☒ Create program group entries

Xilinx Design Tools\_

☒ Create desktop shortcuts

☒ Create file associations

Apply shortcut & file association selections to

☐ Current user

☒ All users

**! This tool is not versioned. Any new installation of the tool will overwrite the existing installation.**

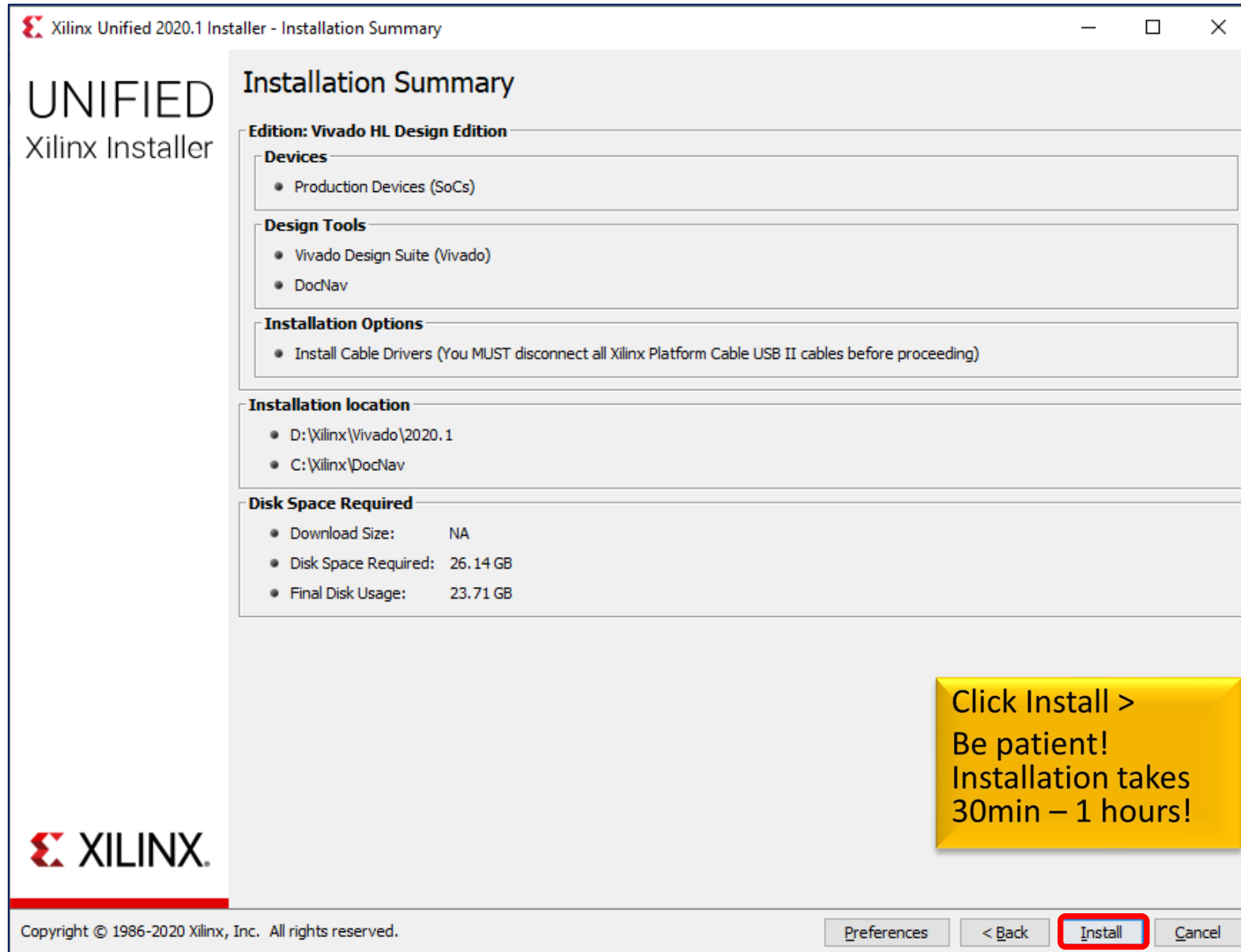
Make sure that you have enough storage space as required.

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< Back Next > Cancel



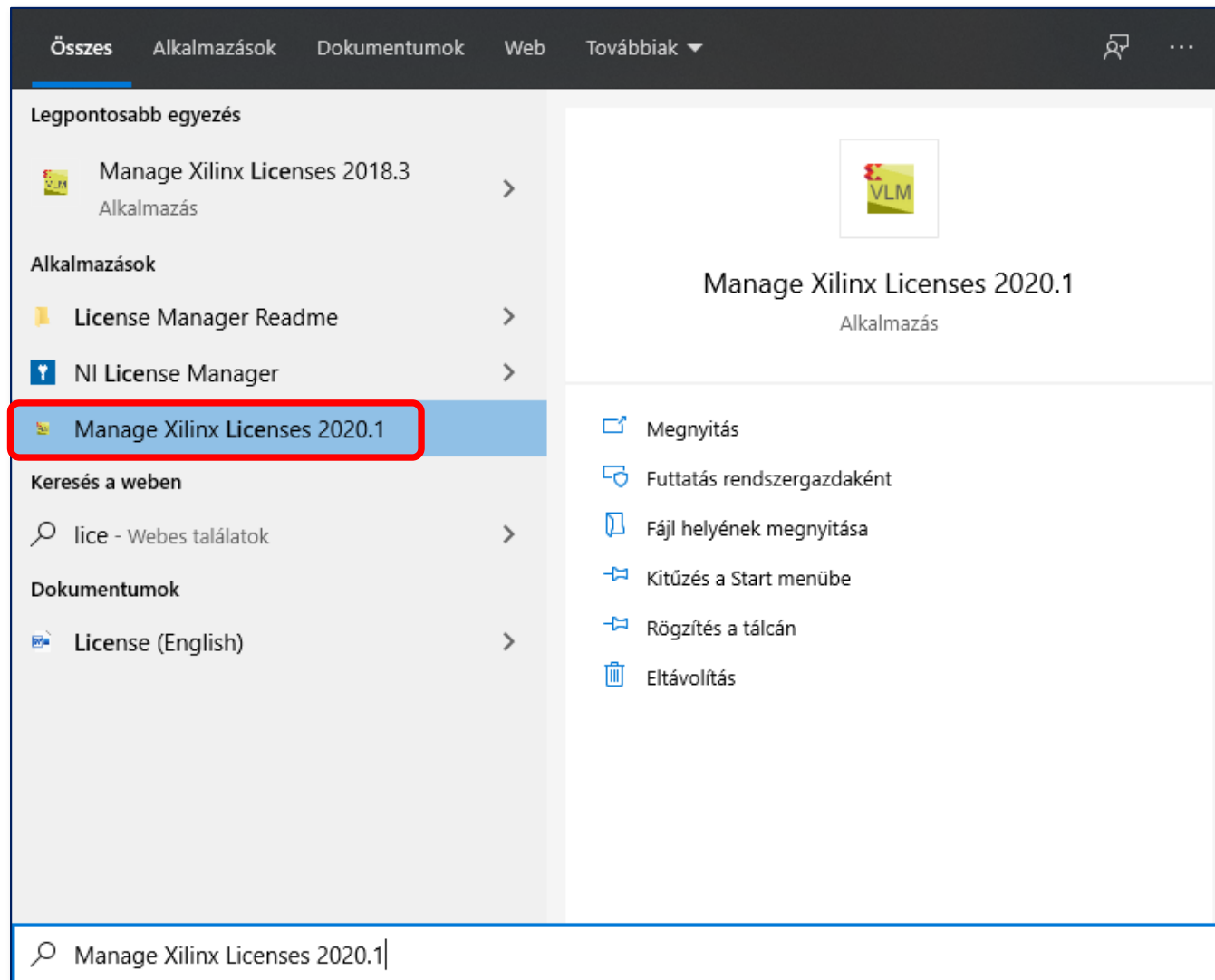
# Summary





# Run License settings

- Select and run „Manage Xilinx Licenses 2020.1”





# License settings

- X

The screenshot shows the Vivado License Manager 2020.1 application window. The left sidebar contains a tree view with the following items: Get License, Set Proxy, Obtain License, Load License, Manage License, View License Status, View System Information, and View Host Information. The 'Manage License' item is expanded, and 'Manage License Search Paths' is highlighted with a red box and a yellow circle labeled '1'. The main panel is titled 'Manage License Search Paths' and contains instructions on how to set environment variables for license files. It includes three examples: pointing to a floating server license, including additional local directories, and pointing to multiple locations. Below the examples, there are two input fields: 'XILINXD\_LICENSE\_FILE' with the value '1234@server' and 'LM\_LICENSE\_FILE' with the value 'c:\flexlm\xilinx\xilinx.lic'. The 'LM\_LICENSE\_FILE' field is highlighted with a red box and a yellow circle labeled '2'. A 'Set' button is located below the 'LM\_LICENSE\_FILE' field, highlighted with a red box and a yellow circle labeled '3'. A yellow callout box with a red arrow pointing to the 'LM\_LICENSE\_FILE' field contains the text: 'Overwrite LM\_LICENSE\_FILE. Instructor gives it in the first lab! (or ask your instructor). Finally Set.'

Vivado License Manager 2020.1

File Help

VIVADO. License Manager

XILINX

Get License

- Set Proxy
- Obtain License
- Load License
- Manage License
- View License Status
- View System Information
- View Host Information

1 Manage License Search Paths

Manage License Search Paths

To point to a floating server license, or to point to license files in locations other than %APPDATA%\XilinxLicense, set one of the environment variables below. XILINXD\_LICENSE\_FILE is the preferred environment variable for working with Xilinx licenses.

Example: Pointing to a floating server license  
XILINXD\_LICENSE\_FILE=1234@server

Example: Including additional local directories  
XILINXD\_LICENSE\_FILE=C:\licenses\Xilinx.lic

Example: Pointing to multiple locations  
XILINXD\_LICENSE\_FILE=1234@server;C:\licenses\Xilinx.lic

XILINXD\_LICENSE\_FILE 1234@server

2 LM\_LICENSE\_FILE c:\flexlm\xilinx\xilinx.lic

3 Set

Overwrite LM\_LICENSE\_FILE.  
Instructor gives it in the first lab!  
(or ask your instructor).  
Finally Set.



# Check license

Vivado License Manager 2020.1

File Help

VIVADO License Manager

XILINX

View License Status

Certificate Based Licenses:

1 ☒ View License Status

Check the number of Seats.  
It is „20“ !  
License type: „Floating“

License Name	Tools/IP	Expiration Date	Version Limit	License Type	Location	# of Seats
Analyzer	Tools	Permanent	2021.01	Node-locked	c:\flexlm\xilinx\xilinx.lic	Unlimited
ChipScopePro_SIOTK	Tools	Permanent	2021.01	Node-locked	c:\flexlm\xilinx\xilinx.lic	Unlimited
ChipscopePro	Tools	Permanent	2021.01	Node-locked	c:\flexlm\xilinx\xilinx.lic	Unlimited
HLS	Tools	Permanent	2021.01	Node-locked	c:\flexlm\xilinx\xilinx.lic	Unlimited
ISE	Tools	Permanent	2021.01	Node-locked	c:\flexlm\xilinx\xilinx.lic	Unlimited
ISIM	Tools	Permanent	2021.01	Node-locked	c:\flexlm\xilinx\xilinx.lic	Unlimited
Implementation	Tools	Permanent	2021.01	Node-locked	c:\flexlm\xilinx\xilinx.lic	Unlimited
PartialReconfiguration	Tools	Permanent	2021.01	Node-locked	c:\flexlm\xilinx\xilinx.lic	Unlimited
PlanAhead	Tools	Permanent	2021.01	Node-locked	c:\flexlm\xilinx\xilinx.lic	Unlimited
SDK	Tools	Permanent	2021.01	Node-locked	c:\flexlm\xilinx\xilinx.lic	Unlimited
Simulation	Tools	Permanent	2021.01	Node-locked	c:\flexlm\xilinx\xilinx.lic	Unlimited
Synthesis	Tools	Permanent	2021.01	Node-locked	c:\flexlm\xilinx\xilinx.lic	Unlimited
SysGen	Tools	Permanent	2021.01	Node-locked	c:\flexlm\xilinx\xilinx.lic	Unlimited
Vivado_System_Edition	Tools	Permanent	2021.01	Node-locked	c:\flexlm\xilinx\xilinx.lic	Unlimited
XPS	Tools	Permanent	2021.01	Node-locked	c:\flexlm\xilinx\xilinx.lic	Unlimited

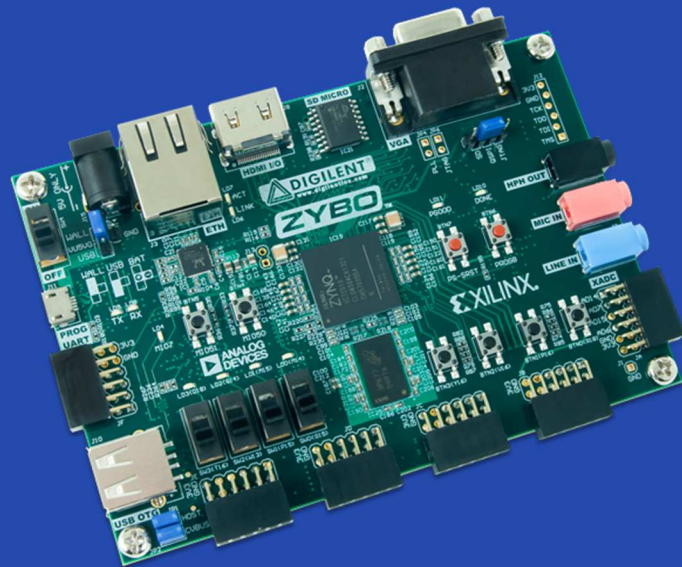
2

Clear Cache Refresh



# 2. SET „ZYBO” HW PLATFORM

Xilinx Vivado



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# Set Hardware platform I.

- In order our „**ZyBo**” as HW platform can be selectable in the Vivado development environment, the following steps must be taken (for the first time only):
- **Step 1.)** Download the appropriate support package from the Laboratory's webpage:

(Link will redirect to the Digilent website):

## Digilent ZYBO

- Support package (\*\*):



Letölthető gyakorlati anyag
-
Digilent ZyBo Fejlesztőkártyákhoz (BSP, XDC): XDC (FPGA lábkiosztás - GIT master): <a href="#">Zybo-Master.xdc</a>
<b>Base System Pack (BSP):</b> <b><a href="#">Vivado Board Files (2020.1)</a></b>
Digilent Zybo hivatalos weboldal: <a href="#">Zybo Zynq-7000 ARM/FPGA SoC Trainer Board</a>



# Set Hardware platform II.

- \*\* Direct Link for Digilent board support package:  
<https://github.com/Digilent/vivado-boards/archive/master.zip>

## Step 2.)

- **COPY** the entire contents of the \ **vivado-zybo-master** \ **new** subdirectory in the package to the Xilinx subdirectory by keeping the directory structure in it
- **TO** → <Xilinx\_install\_dir> \ Vivado \ **202x.y** \ data \ boards \ board\_files

Subdirectory.

- We will use the latest **B.4** version of board files!





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# THAT'S ALL 😊

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