

# zSpace 200

## User's Guide



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# The zSpace 200 System

Congratulations on your purchase of the zSpace system! This guide reviews the features, requirements to run the system, the setup process, and basic usage information.

## Contents of the zSpace System Box

- zSpace display
- Stylus
- 1 Pair tracked polarized glasses
- 1 Pair tracked polarized clip-ons
- 1 Pair non-tracked 2D glasses (for observers)
- 1 Power supply for zSpace display
- 1 DisplayPort cable
- 1 USB Type A to Type B cable for connecting the zSpace display to the PC
- 1 Quickstart guide

## Parts of Your zSpace System



### zSpace System Components

#### Eyewear

In order to use your zSpace system in stereoscopic mode (3D), you need to wear the tracked eyewear. This eyewear includes polarized lenses and small reflectors to tell the system where your eyes are located.

Your zSpace system includes another pair of glasses without the reflectors. An observer can wear these and share your experience without interfering with the tracking.

#### Stylus

The stylus is used to control the system, enabling six degrees of freedom of motion. You use the stylus buttons to select UI controls and objects in the scene.

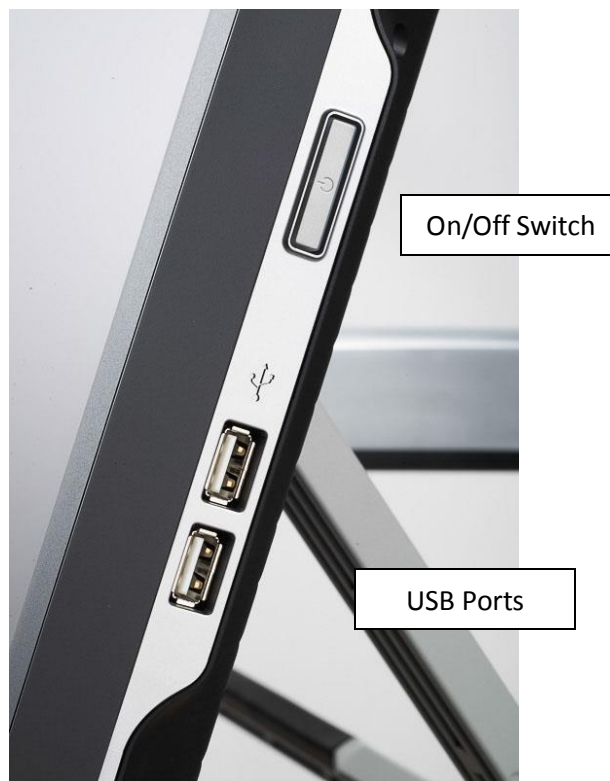
## Tracking Cameras

The tracking cameras are necessary for the stylus and tracking to work. Please do not block the cameras.

## Integrated Stand

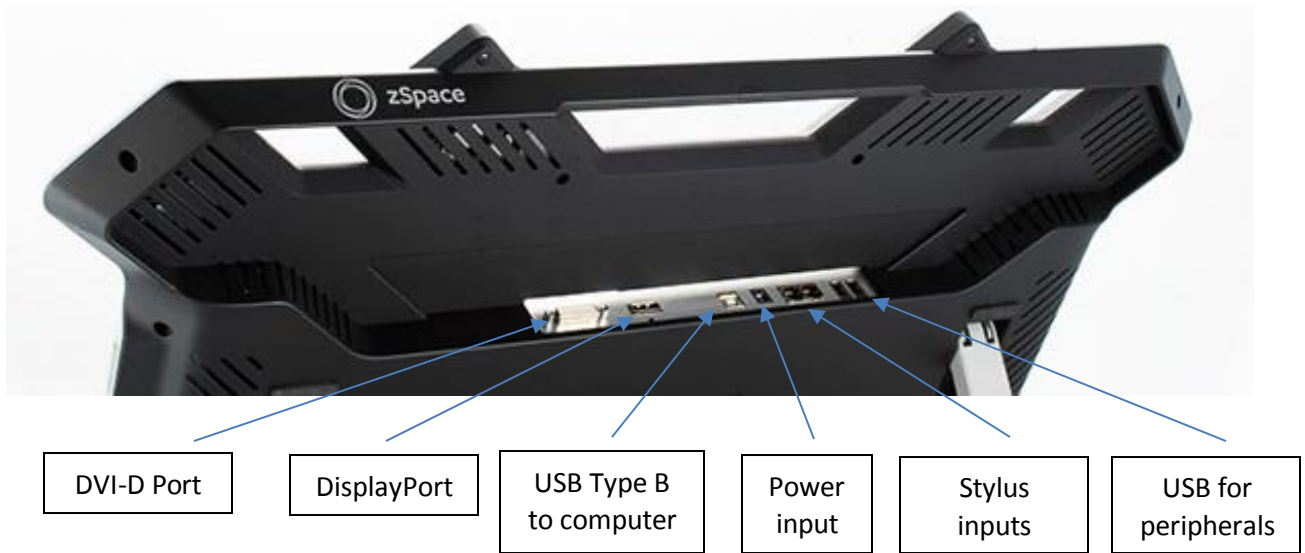
To adjust the angle, pull down to unsnap, pull to desired angle, then pull down to lock in place. To release, push it upwards from the base, then readjust to any of the preset angles (30°, 45°, 60°).

## Side Panel



The Side of the zSpace 200

## Rear Panel



The Back of the zSpace 200

# How zSpace Works

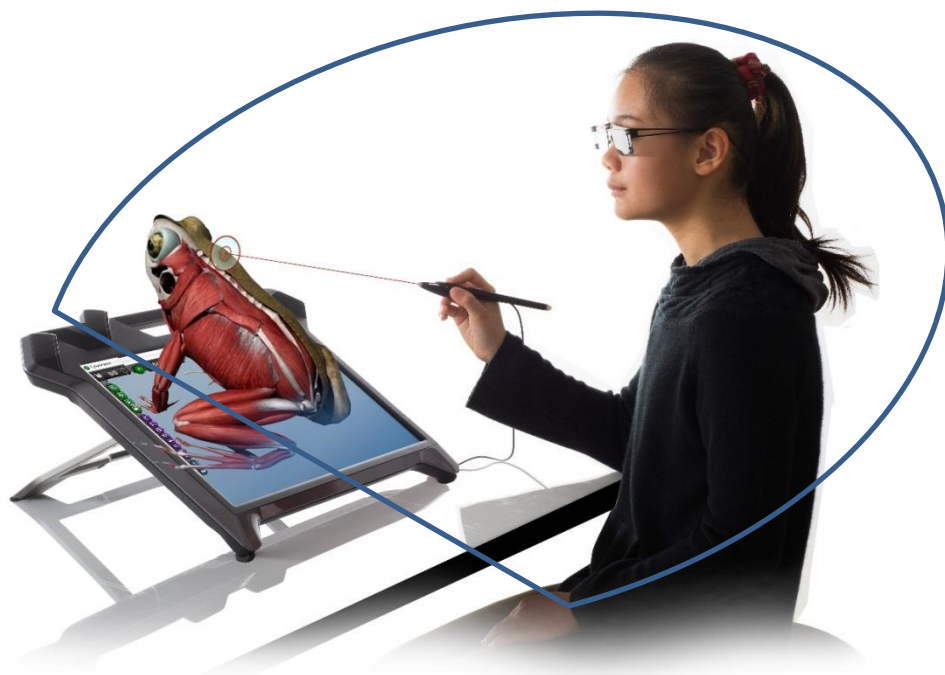
zSpace has many features to enable a compelling user experience.

## Head-Tracked Stereoscopic Display

The head-tracked display enables the zSpace system to display the left and right images for a stereoscopic display. The images adjust as your eyes move within the tracking zone. This capability ensures a comfortable virtual experience.

## Stylus Interaction

The tracking cameras enable the stylus to interact with virtual items anywhere within the tracking zone.



zSpace Tracking Zone



# System Requirements

## Minimum

Intel Core i3 processor, 4 GB RAM, Radeon R7 265 GPU

## Recommended

Intel Core i5 Processor, 16 GB RAM, FirePro W5000 GPU

## zSpace Graphic Card (GPU) Requirements

NVIDIA Quadro series, AMD FirePro series, or AMD Radeon R9 or better desktop or mobile GPU with the following support:

- OpenGL quad buffer stereo
- DisplayPort output connection
- 1920x1080 resolution @ 120hz
- 2GB of on-board memory or better

**Note:** Some applications require Windowed Stereo support. If you are running one, make sure your GPU includes this support as well.

Vendor & Model	Quad Buffer Stereo	OpenGL Driver	Windowed Stereo
NVIDIA Quadro	Yes	Yes	Yes
NVIDIA GeForce	No	No	No
AMD FirePro	Yes	Yes	Yes
AMD Radeon	Yes	Yes	Yes

## Application Graphics Requirements

Independent of GPU and CPU capabilities, some applications are certified on only certain brands of graphics cards due to testing constraints. The following applications have known restrictions:

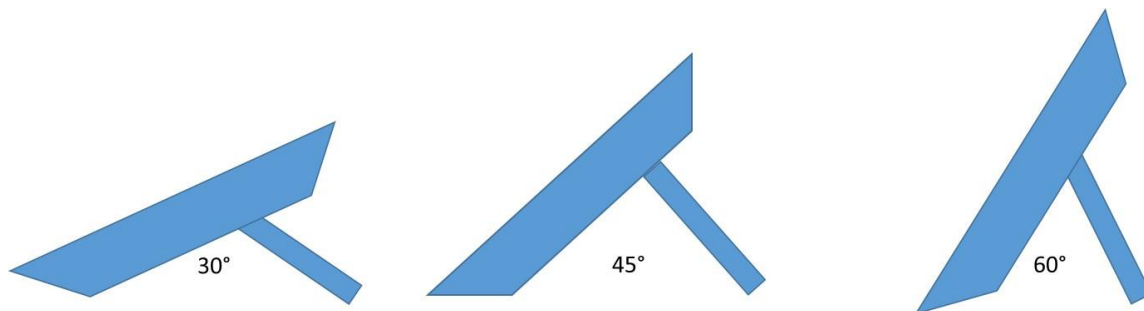
- EON Software: Requires NVIDIA Quadro
- EchoPixel: Requires NVIDIA Quadro or AMD FirePro

All other applications will work in full screen mode across all specified Radeon, FirePro, and Quadro GPUs, with varying performance.

For specific recommendations on hardware for a given application, please contact zSpace.

# Monitor Stands

zSpace 200 has an integrated stand that supports 30, 45 and 60 degree viewing angles.



**zSpace 200 Adjustable Angles**

The following table gives the dimensions of the zSpace 200 at different angles.

Angle	Height	Width	Depth
30 degrees	10.5"	23.5" at base, 27.5" at top	17"
45 degrees	13.75"	23.5" at base, 27.5" at top	14"
60 degrees	16.5"	23.5" at base, 27.5" at top	10"

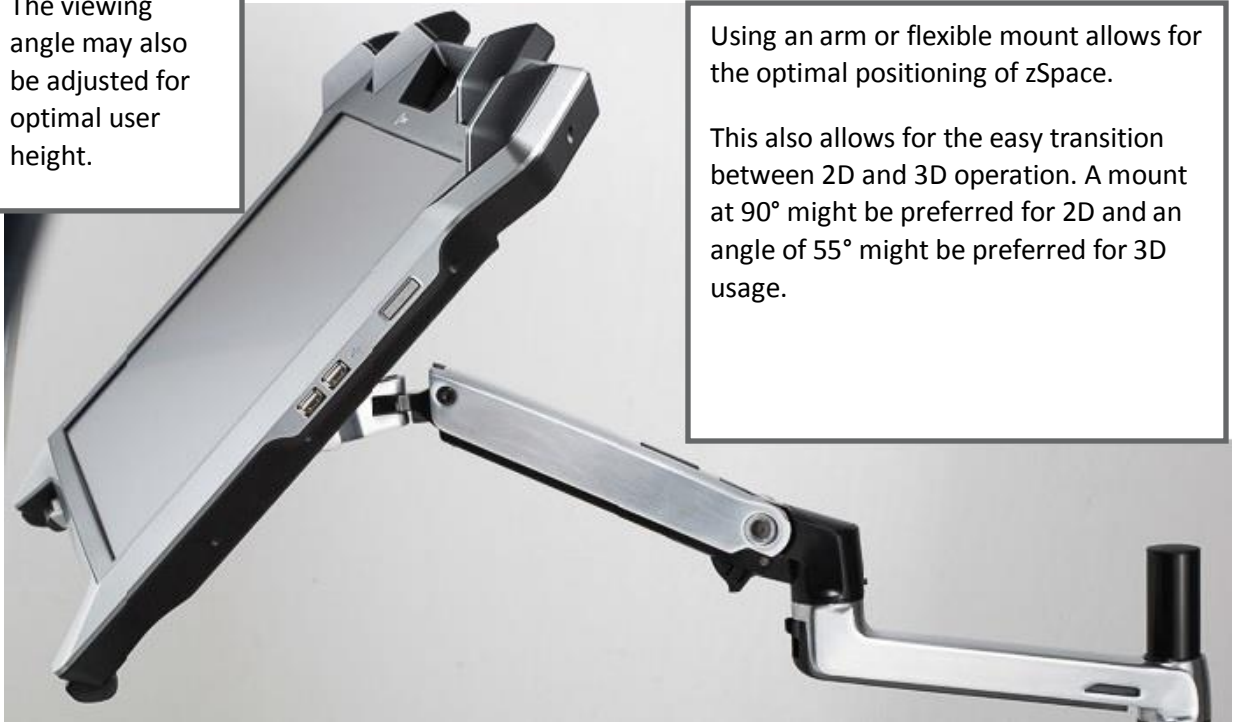
In addition, zSpace includes a 100\*100 mm VESA mount for attachment to a monitor stand. You can mount the zSpace display to a flexible monitor arm or stand that can support any angle.

Make sure your monitor stand can support the weight of the zSpace display, as it is slightly heavier than a conventional monitor of the same diagonal width (24"). The zSpace display weighs 8.8 kg (17 lbs). The addition of a zView armature may also impact weight or angle, so be sure to verify stability when using peripherals.

The viewing angle may also be adjusted for optimal user height.

Using an arm or flexible mount allows for the optimal positioning of zSpace.

This also allows for the easy transition between 2D and 3D operation. A mount at 90° might be preferred for 2D and an angle of 55° might be preferred for 3D usage.



### Mounting the zSpace 200

# Setting Up your zSpace System

## Hardware

1. Confirm that you have all the hardware components. For each zSpace 200, your system includes the following components:
  - o zSpace display
  - o zSpace eyewear with markers (regular glasses and clip-ons)
  - o zSpace eyewear without the markers
  - o zSpace stylus with cable
  - o Power supply for the zSpace display with corresponding cable
  - o USB cable
  - o DisplayPort cable

Depending on the hardware package you ordered, your system may include the PC.

2. Plug in all the cables. Refer to the illustrated Quickstart Guide that comes in the box with your zSpace system. You can also download a copy from <http://zspace.com/setup>.

**Note:** You may see warning or error messages that the USB drivers are not installed yet. This will automatically correct itself once the drivers install.

3. When you finish connecting the zSpace system hardware, download the zSpace software and firmware and install them as described in the next section.

## Software and Firmware

Use the zSpace Control Panel to check for system software updates. You will need an Internet connection to do so.

1. Click on the Check for Updates link on the zSpace Control Panel.
2. If an update is available, download the installer for the new version.

**Note:** The updater will refer to system software updates as Control Panel updates.

3. Uninstall the current version of the system software.
4. Run the installer and follow the on-screen prompts.

## Verifying Setup

To verify that the zSpace display, glasses, stylus, and system software are working correctly, run the zSpace System Check. Follow these steps:

1. Select the zSpace Control Panel from the Windows Start Menu.

**Note:** If you updated the system software, the zSpace System Check starts automatically after installation.

2. On the Support tab, click on Run zSpace System Check.
3. Follow the instructions on screen. Pay close attention to the icons on screen that tell you whether to wear the glasses or use the stylus for each test.

If a test fails, the System Check will end and a message box will display a link to the zSpace support site for further information.

If any part of the test is unclear, refer to the detailed steps below:

1. The first test checks the display. You will be presented with a shaded rectangle. Click on the button indicating the color of the rectangle.

**Important Note:** On systems with an AMD graphics card, you will always see a red rectangle. Click on the purple button to advance, so that you can continue the System Check. Your applications will work correctly.

2. The second test checks the stereo in the system. Put on the zSpace eyewear and indicate if the panel on the right has depth and dimension. If so, click on Yes. If not, click on No.
3. The third test checks the zSpace eyewear. Put on the eyewear with markers when instructed and click on Next. When the crosshairs appear on screen, move your head to move the crosshairs into all of the circles, one by one.
  - o If you are successful touching all circles, your eyewear tracking mechanism is functioning properly.
  - o If you are unable to complete the exercise, indicate that a problem has occurred by pressing the spacebar. As with all error conditions, you will be directed to the technical support site for further information.
4. The fourth test checks the stylus buttons. As you click on each stylus button, confirm it lights up in the System Check picture. Once all three buttons are recognized, use the mouse to click on Next.

5. The fifth test checks the stylus LED and vibration. If the LED lights on the stylus match the lights in the System Check picture, click on Yes with the mouse.
6. If the stylus vibrates when indicated by the System Check picture, click on Vibration with the mouse.
7. The sixth test checks that stylus tracking works correctly. This is very similar to the eyewear tracking test.

Click on Next to begin the test. Move the crosshairs into each circle with the stylus. If the test is successful, you have completed setting up your zSpace system. Click on Finish with the mouse.

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# Software for your zSpace System

A purchase of a zSpace system includes the purchase of a license to zSpace's Core software. This Core software enables a PC to control the zSpace hardware, along with providing various base applications that enable you to use zSpace effectively.

The Core software consists of:

- zSpace System – Display and tracking drivers
- zSpace Zone – Virtual Reality desktop interface
- zSpace Studio – A model viewing tool that allows the import and publishing of 3D models from many environments
- zSpace Gallery – A large volume of curated models for use in the zSpace Studio application
- zSpace Online Marketplace – Coming soon

In addition to these applications, there are many zSpace and partner applications that can be downloaded and/or purchased for use with your zSpace system.

Please visit <http://zspace.com> to find additional software titles for use in the zSpace system.



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# Safety Instructions

Please carefully review the safety instructions described in the following section. This information is provided to help you experience the best features of your zSpace system and prevent problems that may decrease performance.

Failure to follow the instructions might void the limited warranty agreement, in which case zSpace will not be responsible for replacing or repairing the product. Disregarding specific safety instructions may also cause injury and serious damage to health.

## Usage

- Only use the power adapter provided with the zSpace system. Using a different type of power adapter may cause damage with the risk of fire. Be sure to use a grounded power source.
- When moving or adjusting the zSpace display, be careful when grasping the upper plastic enclosure. Excessive pressure could misalign or damage the sensors.
- Mishandling or dropping the zSpace display may cause alignment problems with the tracking device.
- Do not open or disassemble the zSpace display or any hardware components associated with zSpace. In some cases, there is risk of electrical shock. Opening the system or damaging components will void the warranty.
- Avoid placing sharp or heavy objects on the zSpace monitor to prevent scratching the display surface or causing breakage.
- Avoid dropping the stylus or catching the cable on immovable objects.
- When using zSpace eyewear, be careful not to remove or damage the markers, which are critical to head tracking.
- If the zSpace display's screen is damaged for any reason, do not touch any liquid emanating from the unit. In case of contact with skin, rinse or flush any affected surfaces immediately with running water. Please consult a physician in all cases.

## Basic Operation

- The zSpace display works best in moderate lighting conditions. Sunlight and bright lights within the view of the sensors can affect overall performance of the tracking mechanisms. Avoid bright lights for best results.
- Be careful when connecting the cables on the back of the zSpace display. It is possible to inadvertently plug the USB cable into the RJ-11 port, which could cause a short circuit and render the product inoperable.
- The power button on the zSpace display is multi-functional:
  - o To turn on the display, tap the power button.
  - o To turn the backlight off and on, tap the power button off and on.
  - o To turn off the display, hold the power button for about 4 seconds.

## Environment

- Temperature : 10 - 40 degrees C (50 - 104 degrees F)
- Humidity : 10 - 80 %, non-condensing (dry location)
- Do not operate or store zSpace hardware in any location where temperature changes are severe.

## Physiological Effects

- Avoid long hours of prolonged use of 3D applications which may cause eyestrain, mild fatigue, and in extreme cases, illness and seizures. Do not engage in operating vehicles or machinery when feeling any of the described effects as a result of using the system.
- zSpace disclaims any and all liability to users for any dizziness, nausea, headaches and/or other sensations of physical discomfort or illness that a user may experience as a result of use of the zSpace system.
- In some cases, viewing objects in 3D stereo may cause disorientation and the objects may appear blurry. One possible reason is the reversal in the detection of the left and right frames in the specific application. Depending on the application, toggling the zSpace display's backlight by tapping the power button off and on may correct the problem.

## Caring for zSpace

- Keep the zSpace display's surface clean. Use an anti-static or slightly damp cloth with light pressure. Regular cleaning will help prolong the life of the screen surface.
- Avoid cleaning products with heavy alcohol-based cleaning agents, especially on the screen.
- Use a lint-free cloth to remove any dirt or residue from the zSpace eyewear.
- Keep the zSpace system in a clean, dry place, and avoid extremes in temperature.
- Avoid contact with liquids.
- When cleaning, disconnect the zSpace display from the power source.

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# Recycling (WEEE) and RoHS

We request you recycle your zSpace system when replacing it with a newer product or when any hardware component reaches the end of its useful life. Please bring all materials to appropriate recycle centers in your community or region.

For users in the European Union, zSpace provides a recycling process as part of the Waste Electrical and Electronic Equipment (WEEE) program. Please contact zSpace for instructions on how to return the unit to an appropriate location.

You can refer to the RoHS and WEEE Compliance Statements in the Regulatory Statements section of the zSpace support site.

# Appendix A: Specifications

<b>Resolution</b>	1920*1080 Full HD
<b>Display Area</b>	20.5" H * 11.5" V, 23.6" D
<b>Rise Time/Fall Time</b>	Tr: 1.3 ms Tf: 4.3 ms
<b>Contrast Ratio</b>	2D: 1000:1 3D: 100:1
<b>Power Requirements</b>	12 VDC, External Power Adapter: 100-240 VAC 50/60 Hz
<b>Package Includes:</b>	USB Device to Computer DisplayPort Cable Power adapter Stylus Polarized Eyewear Polarized Clip-ons
<b>Stand</b>	30°, 45°, 60°, Variable with VESA height: 10.5" – 16.5", depending on angle width: 23.5" at base, 27.5" at top depth: 10" – 17", depending on angle
<b>VESA</b>	100 mm * 100 mm
<b>Brightness</b>	2D: 500 cd/m2 3D: 500 cd/m2
<b>Operating Environment</b>	Temperature: 10-40° C Humidity: 10-80% NC
<b>Certifications</b>	FCC B, WEEE, CE, RoHS, VCCI, CB, UL, C-Tick, PSE, SPRING
<b>Connectors</b>	Type B USB – 1 port Type A USB (Hub) – 4 ports DisplayPort (1.2) DVI Stylus *2 DC Power (12V)

# Appendix B: Certifications

## FCC Certification

Your zSpace product is marked to indicate its compliance class:

Federal Communications Commission (FCC) – USA

Please read the appropriate section that corresponds to the marking on your zSpace product before attempting to install the product.

## FCC Class B Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Modifications: Any modifications made to this device that are not approved by zSpace, Inc. may void the authority granted to the user by the FCC to operate this equipment.

# Appendix C: Limited Warranty

This warranty applies to customers located in the United States, Australia, Canada (except Quebec), Ireland, New Zealand, U.K., and other English language countries, and countries for which a translation into the local language is not provided.

**HARDWARE:** zSpace, Inc. (“zSpace”), warrants to the end user (“Customer”) that this product will be free from defects in workmanship and materials, under normal use, for one (1) year from the date of purchase from zSpace or its authorized reseller. zSpace’s sole obligation under this express warranty shall be, at zSpace’s option and expense, to repair the product or part, replace the product or part with a comparable product or part, or if neither repair nor replacement is reasonably available, zSpace may, in its sole discretion, refund to Customer the purchase price paid for the product or part. Replacement products or parts may be new or reconditioned. zSpace warrants any replaced or repaired product or part for a period of ninety (90) days from shipment, or through the end of the original warranty, whichever is longer.

**SOFTWARE:** zSpace warrants to Customer that each software program licensed from it will perform in substantial conformance to its published program specifications, for a period of ninety (90) days from the date of purchase from zSpace or its authorized reseller. zSpace warrants the media containing software against failure during the warranty period. No updates are required to be provided, but zSpace may choose to provide updates in its sole discretion. zSpace’s sole obligation under this express warranty shall be, at zSpace’s option and expense, to replace any defective media, to modify the software so that it substantially conforms to the applicable zSpace published program specifications. zSpace makes no warranty or representation that its software products will meet Customer’s requirements or work in combination with any hardware or applications software products provided by third parties, that the operation of the software products will be uninterrupted or error-free, or that all defects in the software products will be corrected. Certain software contains certain open source software and is licensed pursuant to the applicable open source licenses specified in the documentation and is provided WITHOUT WARRANTY OF ANY KIND.

**OBTAINING WARRANTY SERVICE:** If the product was purchased through a reseller, Customer should contact the reseller for warranty procedures. If the product was purchased directly from zSpace, or if the reseller is unable to provide warranty service, Customer must contact zSpace’s Technical Service Center within the applicable warranty period to obtain a return materials authorization (RMA) number. Dated proof of original purchase from zSpace or its authorized reseller will be required. Products or parts shipped by Customer to zSpace must be sent prepaid and packaged appropriately for safe shipment, and it is recommended that they be insured or sent by a method that provides for tracking of the package. Responsibility for loss or damage does not transfer to zSpace until the returned item is received by zSpace. If Advance Exchange is not available (see paragraph immediately below), the repaired or replaced item will be shipped to Customer, at zSpace’s expense, not later than fifteen (15) days after zSpace receives the defective product, and zSpace will retain risk of loss or damage until the item is delivered to Customer. zSpace shall not be responsible for Customer’s software, firmware, information, or memory data contained in, stored on, or integrated with any products returned to zSpace for repair, whether under warranty or not. All returned products or parts that are replaced become the property of zSpace. If zSpace determines that failure of the product(s) was not a result of a defect in materials or workmanship, zSpace reserves the right to charge Customer for time and materials at zSpace’s then-current labor rate, and return shipping charges. zSpace will advise Customer prior to assessing these charges.

**Dead- or Defective-on-Arrival.** In the event a product completely fails to function or exhibits a defect in materials or workmanship within the first forty-eight (48) hours of installation but no later than thirty (30) days after the date of purchase, and this is verified by zSpace, it will be considered dead- or defective-on-arrival (DOA) and a replacement shall be provided prior to zSpace receiving the defective product (“Advance Exchange”), but only if Customer provides a purchase order number, credit card number, or other method of payment acceptable to zSpace, to be used if zSpace needs to charge Customer for the replacement, as explained below. The replacement product will normally be shipped the second business day after issuance of an RMA that is issued by 3:00 p.m. Pacific Time, and on the third business day following issuance of an RMA that is issued after 3:00 p.m. Pacific Time, but may be delayed due to availability and export or import procedures. The shipment of Advance Exchange products is subject to local legal requirements and may not be available in all locations. When an Advance Exchange is provided and Customer fails to return the original product to zSpace within fifteen (15) days after shipment of the replacement, zSpace will charge Customer for the replacement product, at list price.

**WARRANTIES EXCLUSIVE:** IF THIS PRODUCT DOES NOT OPERATE AS WARRANTED ABOVE, CUSTOMER’S SOLE REMEDY FOR BREACH OF THAT WARRANTY SHALL BE REPLACEMENT OR REPAIR OF THE PRODUCT OR PART, OR REFUND OF THE PURCHASE PRICE PAID, AT ZSPACE’S OPTION. TO THE FULL EXTENT ALLOWED BY LAW, THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, TERMS, OR CONDITIONS, EXPRESS OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW,

STATUTORY OR OTHERWISE, OR ARISING FROM THE COURSE OF DEALING BETWEEN THE PARTIES OR USAGE OF TRADE, INCLUDING WARRANTIES, TERMS, OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, SATISFACTORY QUALITY, CORRESPONDENCE WITH DESCRIPTION, NON-INFRINGEMENT, AND ACCURACY OF INFORMATION GENERATED, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. ZSPACE DOES NOT AUTHORIZE ANY RESELLER, EMPLOYEE, OR ANY OTHER PERSON TO MODIFY OR EXTEND THIS WARRANTY, OR TO ASSUME FOR IT ANY OTHER OBLIGATION OR LIABILITY IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE OR USE OF ITS PRODUCTS.

zSpace shall not be liable under this warranty if its testing and examination disclose that the alleged defect or malfunction in the product does not exist or was caused by Customer's or any third person's misuse, neglect, improper installation or testing, unauthorized attempts to open, repair, or modify the product, or any other cause beyond the range of the intended use, or by accident, fire, lightning, POWER CUTS or outages, other hazards, or acts of God.

**LIMITATION OF LIABILITY:** TO THE FULL EXTENT ALLOWED BY LAW, ZSPACE EXCLUDES FOR ITSELF AND ITS SUPPLIERS ANY LIABILITY, WHETHER BASED IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), OR ANY OTHER LEGAL THEORY, FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES OF ANY KIND, OR FOR LOSS OF REVENUE OR PROFITS, LOSS OF BUSINESS, LOSS OF INFORMATION OR DATA, OR OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE, USE, PERFORMANCE, FAILURE, OR INTERRUPTION OF THIS PRODUCT, EVEN IF ZSPACE OR ITS AUTHORIZED RESELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, AND LIMITS ITS LIABILITY TO REPLACEMENT, REPAIR, OR REFUND OF THE PURCHASE PRICE PAID, AT ZSPACE'S OPTION. THIS DISCLAIMER OF LIABILITY FOR DAMAGES WILL NOT BE AFFECTED IF ANY REMEDY PROVIDED HEREIN SHALL FAIL OF ITS ESSENTIAL PURPOSE.

**DISCLAIMER:** Some countries, states, or provinces do not allow the exclusion or limitation of implied warranties or the limitation of incidental or consequential damages for certain products supplied to certain purchasers, or the limitation of liability for personal injury, so the above limitations and exclusions may be limited in their application to you. When the implied warranties are not allowed to be excluded in their entirety, they will be limited to the duration of the applicable written warranty. This warranty gives you specific legal rights which may vary depending on local law.

**GOVERNING LAW AND VENUE:** This LIMITED WARRANTY IS governed by the laws of the State of California as such laws are applied to agreements entered into and to be performed entirely within California between California residents, and by the laws of the United States. The United Nations Convention on Contracts for the International Sale of Goods (1980) is hereby excluded in its entirety from application to this Limited Warranty. The Superior Court of Santa Clara County and/or the United States District Court for the Northern District of California shall have exclusive jurisdiction and venue over all controversies in connection herewith.