



## **Board Specification**

**WinFast® RTX 2080 (MPN: 32776101101)**

**Graphics Board (LR 2776)**

**96VG-NR2080F16-6M**

## Document Change History

| Version | Date       | Responsible | Description of Change             |
|---------|------------|-------------|-----------------------------------|
| 01      | 11/21/2018 | Cruise      | Initial release                   |
| 02      | 12/04/2018 | Cruise      | Add PLACEMENT OF Power CONNECTORS |
|         |            |             |                                   |

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## Overview

The Leadtek WinFast® RTX 2080 graphics board is a PCI Express full-height (111mm by 267mm ) form factor graphics add-in card based on the new NVIDIA® Turing GPU,

The Leadtek WinFast® RTX 2080 offer 8G HIGH-bandwidth GDDR6 memory in 256-bit configuration and supports HDMI, 3 x DP and USB Type-C. The use of all solid aluminum capacitors also provides ultra-high durability and stability even during overclocking.

In addition, WinFast RTX 2080 incorporates the new industry-standard VirtualLink connector to simplify the deployment of Enterprise VR experiences with headroom to handle future Head Mounted Displays with up to twice the resolution of today's top-of- the-line headsets



# Specifications

## Product Specifications

| Specification                |       | Description  |
|------------------------------|-------|--|
| Product Name                 |       | WinFast RTX 2080   |
| GPU Architecture             |       | NVIDIA Turing GPU(TU104)   |
| Physical dimensions          |       | 111mmx267mm; 2 slot  |
| CUDA Cores                   |       | 2944   |
| GPU clocks                   | Base  | 1515 MHz   |
|                              | Boost | 1710 MHz   |
| VBIOS                        |       | UEFI Supported   |
| PCI Express interface        |       | PCI Express 3.0 ×16  |
| Display connectors           |       | 3 x DisplayPort® connectors (1.4)<br>1 x HDMI(2.0b)<br>1 x USB-C                     |
| Multi Monitor                |       | 4  |
| Power connectors and headers |       | PCIe power connectors:<br>One 8-pin<br>One 6-pin                                     |
| OpenGL®                      |       | 4.5  |
| DirectX® Capability          |       | DirectX® 12 API  |
| NVIDIA NVLink                |       | YES  |
| Decoder(NVIDIA GPU)          |       | HEVC/H.264/VP9/VC1/MPEG-1,2,4  |
| Total graphics power (TGP)   |       | 215 W  |
| PCI IDs                      |       | Device ID: 1E82(87)<br>Vendor ID: 10DE<br>Sub-Vendor ID: 107D<br>Sub-System ID: 2776 |

## Memory Specifications

| Specification    | Description    |
|------------------|----------------|
| Memory Size      | 8G GDDR6       |
| Memory clock     | 14 Gbps        |
| Memory bus width | 256 bits       |
| Memory bandwidth | Up to 448 GB/s |

## Software Specifications

| Specification      | Description   |
|--------------------|---|
| Bar address        | BAR0: 16 MB<br>BAR1: 256 MB<br>BAR2: 34 MB<br>I/O BAR: 128B |
| PCI class code     | 0x03-Display controller                                     |
| PCI sub-class code | 0x00 VGA-Compatible controller                              |
| HDCP support       | 2.2   |

## Display Specifications

| Specification | Version            | Maximum Digital Resolution |
|---------------|--------------------|----------------------------|
| DisplayPort   | 1.4 <sub>(1)</sub> | 7680x4320 x36 bpp at 60Hz  |
| HDMI          | 2.0b               | 3840x2160 x24 bpp at 60Hz  |

### Notes:

1. DisplayPort 1.2 Certified, DisplayPort 1.3/1.4 Ready.

## Thermal Specifications

| Parameter                                     | Value | Units |
|---|-------|-------|
| Total graphics power (TGP)                    | 215   | W     |
| GPU shutdown temperature                      | 101   | °C    |
| GPU slowdown temperature (50% clock slowdown) | 98    | °C    |
| Maximum fan inlet temperature                 | 45    | °C    |

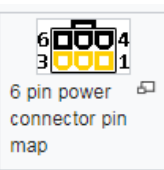

## Input EDP Continuous Specifications

| Input Rails                      | Maximum Value | Moving Average |
|----------------------------------|---------------|----------------|
| PCI Express edge connector (12V) | 66 W          | 1 s            |
|                                  | 5.5 A         | 1 s            |
| PCIe 8-pin power connector (12V) | 150W          | 1 s            |
|                                  | 12.5 A        | 1 s            |
| PCIe 6-pin power connector (12V) | 75 W          | 1 s            |
|                                  | 6.25 A        | 1 s            |
| Total graphic power              | 215 W         | 1 s            |

### Board Environmental and Reliability Specifications

| Specification         | Condition                   |
|-----------------------|-----------------------------|
| Operating temperature | 0 °C to 45 °C               |
| Storage temperature   | -40 °C to 75 °C             |
| Operating humidity    | 5% to 95% relative humidity |
| Storage humidity      | 5% to 95% relative humidity |

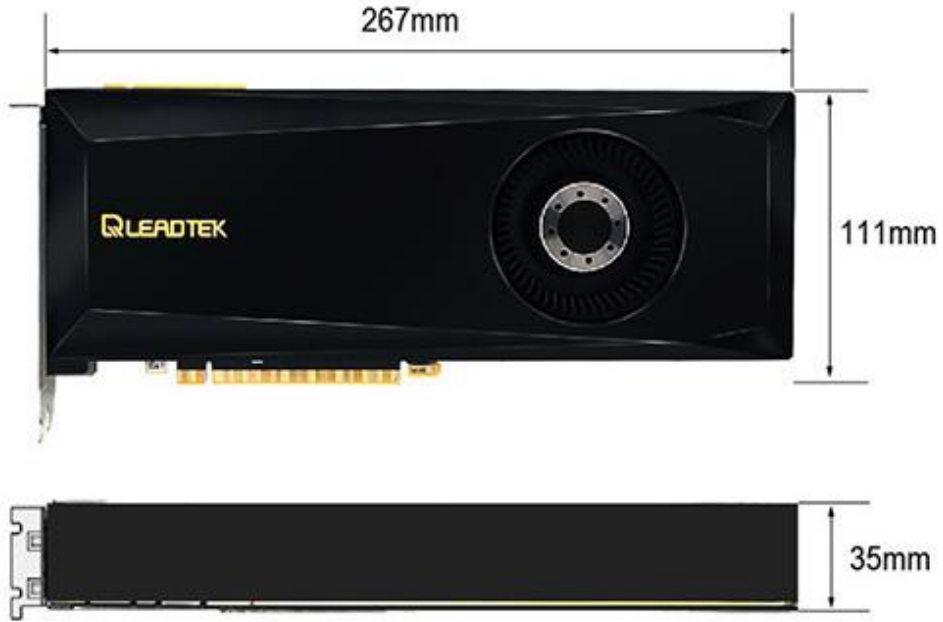
### Power connector define

| 6-pin Power connector  |   |        | 8-pin Power connector  |        |        |
|--|---|--------|--|--------|--------|
|  <p>6 pin power connector pin map</p> | 1 | +12 v  |  <p>8 pin power connector pin map</p> | 1      | +12 v  |
|  | 2 | +12 v  |  | 2      | +12 v  |
|  | 3 | +12 v  |  | 3      | +12 v  |
|  | 4 | Ground |  | 4      | Sense1 |
|  | 5 | Sense  |  | 5      | Ground |
|  | 6 | Ground |  | 6      | Sense0 |
|  |   | 7      |  | Ground |        |
|  |   | 8      |  | Ground |        |

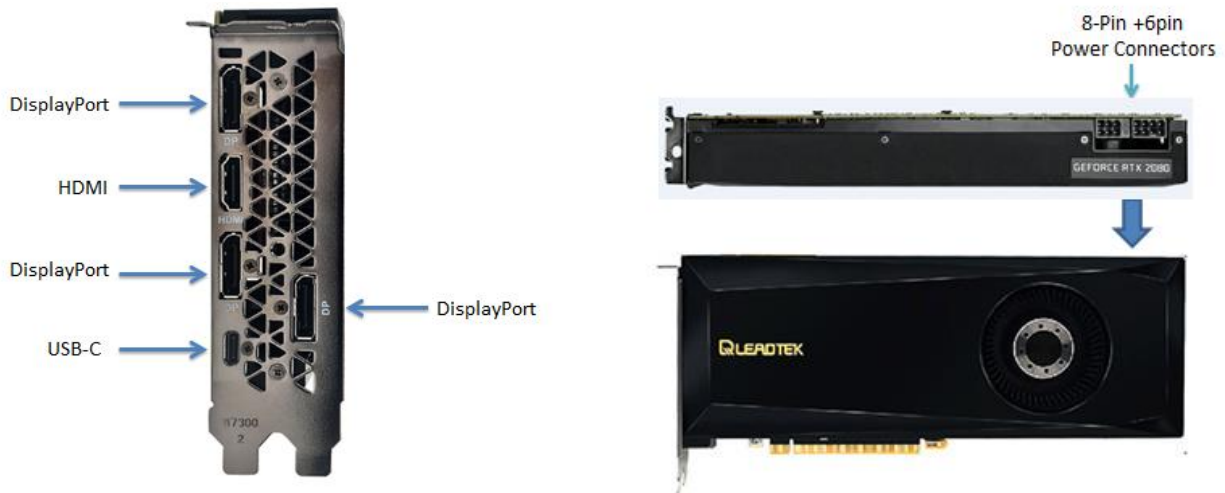
# Mechanical Specifications

## FORM FACTOR

The Leadtek WinFast® RTX 2080 graphics board conforms to the PCI Express full height (111 mm by 267 mm ) form factor graphics add-in card.



## PLACEMENT OF STANDARD I/O CONNECTORS





## Support Information

### Operating System Support

- Microsoft Windows® 10 64-bit (April 2018 Update or later), Windows 7 64-bit,
- Linux 64-bit

### System Requirements

- PCI Express-compliant motherboard with one dual-width x16 graphics slot
- 650 W or greater system power supply
- 1.5 GB available hard-disk space
- 8 GB system memory (16GB recommended)
- Microsoft Windows® 10 64-bit (April 2018 Update or later), Windows 7 64-bit, Linux 64-bit
- One 8-pin and one 6-pin supplementary power connectors

### Certificates and Agencies

- Conformité Européenne (CE)
- Federal Communications Commission (FCC)
- Korea Communications Commission(KC)
- RoHS

### Package Content

- WinFast RTX 2080
- Quick installation guide and software disc
- 8-pin power Cable x 1
- 6-pin power Cable x 1

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