

**Warning**

- Only qualified service personnel should install and service this product to avoid damage or injury.
- Observe all ESD procedures during installation to avoid damaging the equipment.

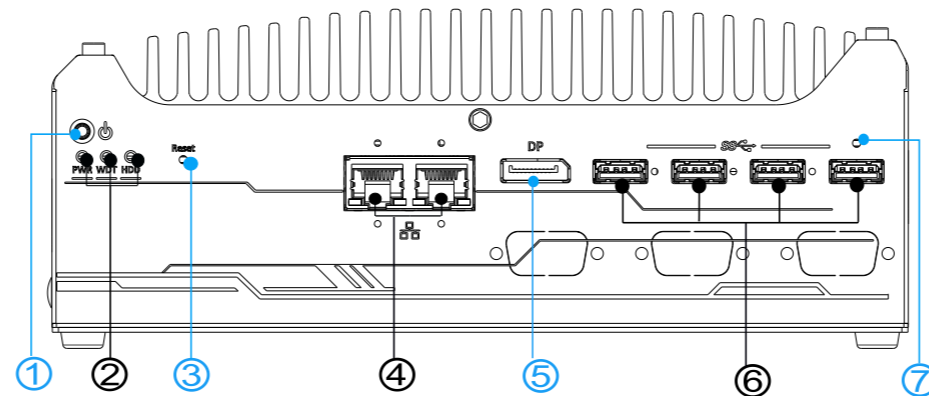
**1 Preparing tools**

Unpack the equipment and make sure the following tools are available and delivered contents are correct.

- 1-1. User-provided tools
- Anti-static wrist wrap
- 1-2. Packing List

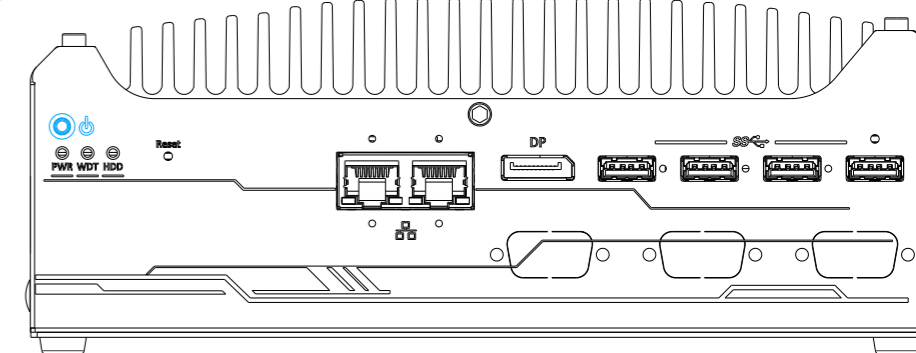
Item	Description	Quantity
01	Nuvo-9501 system	1
02	CPU bracket	1
03	3-pin pluggable terminal block	1
04	Screw pack	1

**2 Overview - Front Panel**



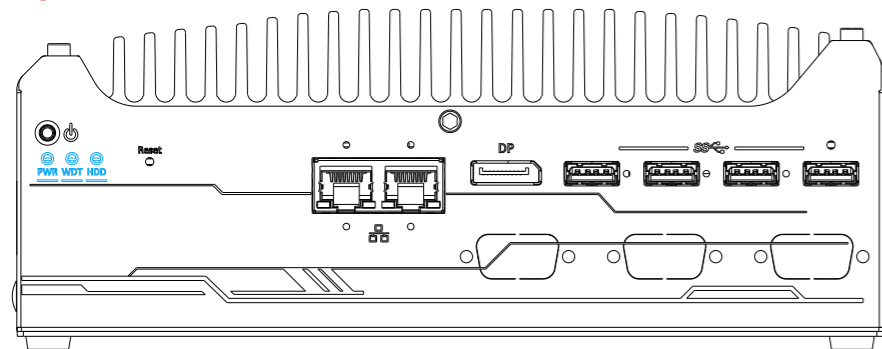
No.	Item	Description
1	Power button	Use this button to turn on or shutdown the system.
2	System status LEDs	Three system LEDs, Power (PWR), Watchdog Timer (WDT), and Hard Disk Drive (HDD).
3	Reset button	Use this button to manually reset the system.
4	2.5G Ethernet Port	The 2.5G Ethernet ports support 10/ 100/ 1000/ 2500 Mbps network connections
5	DisplayPort	The DisplayPort is a digital signal video output port supporting resolutions up to 4096 x 2304
6	USB 3.1 Gen1 port	USB 3.1 Gen1 port supports up to 5 Gbit/s data transfer bandwidth.
7	CMOS reset	Use this button to manually reset the CMOS.

**3 Power Button**



The power button is a non-latched switch for ATX mode on/off operation. To turn on the system, press the power button and the PWR LED should light-up green. To turn off the system, issuing a shutdown command in OS is preferred, or you can simply press the power button. To force shutdown when the system freezes, press and hold the power button for 5 seconds. Please note that there is a 5-second interval between on/off operations (i.e. once the system is turned off, there is a 5-second wait before you can power-on the system).

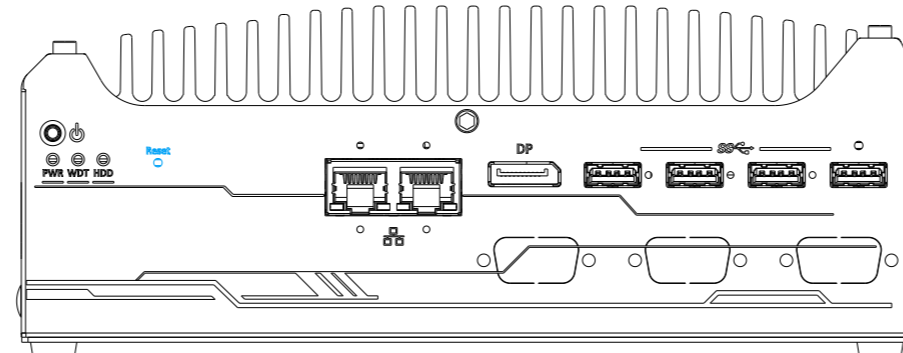
**4 System Status LED**



There are four LED indicators on the I/O panel: PWR (power), WDT (Watchdog timer), HDD (hard disk drive). The descriptions of the LED are listed in the following table.

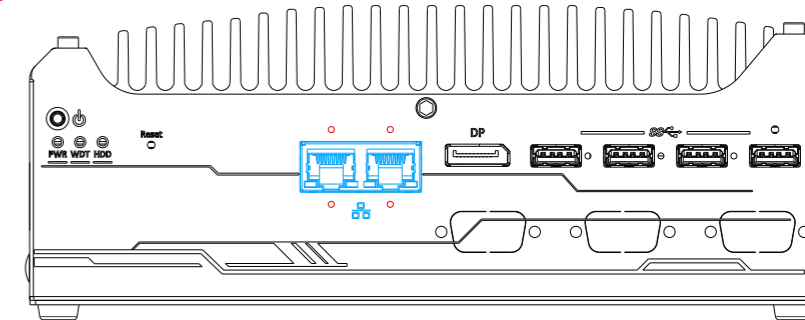
Indicator	Color	Description
PWR	Green	Power indicator, lighted-up when system is on.
WDT	Yellow	Watchdog timer LED, flashing when watchdog timer is started.
HDD	Red	Hard drive indicator, flashing when SATA HDD is active.

**5 Reset Button**



The reset button is used to manually reset the system in case of system halt or malfunction. To avoid unexpected reset, the button is purposely placed behind the panel. To reset, please use a pin-like object (eg. tip of a pen) to access the reset button.

**6 2.5G Ethernet Port**



The system offers two 2.5Gb Ethernet ports using Intel® I226 controller, and each port each come with screw-lock mechanism (indicated in red). When plugged in and connected via the Ethernet cable, the LEDs on the RJ45 connector indicate connection status and speed.

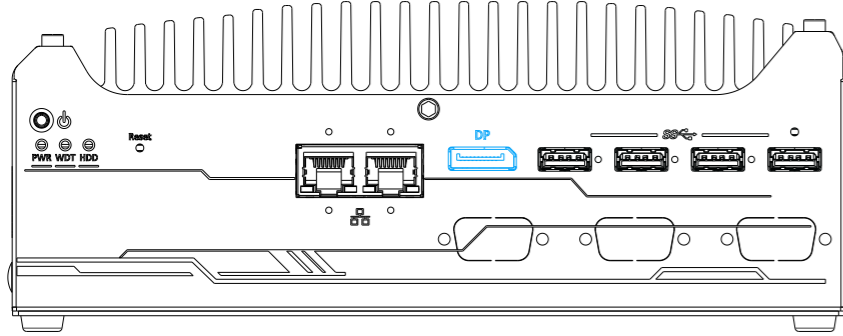
**Active/Link LED**

LED Color	Status	Description
Orange	Off	Ethernet port is disconnected
	On	Ethernet port is connected and no data transmission
	Flashing	Ethernet port is connected and data is transmitting/receiving

**Speed LED**

LED Color	Status	Description
Green or Orange	Off	10 Mbps
	Green	100 Mbps
	Orange	1000/ 2500 Mbps

## 7 DisplayPort

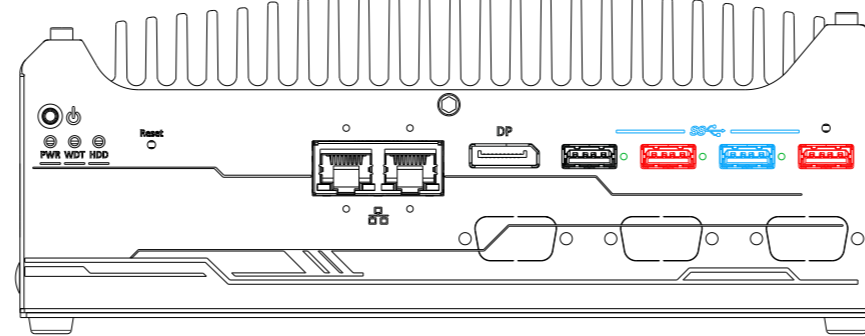


The system has a DisplayPort (DP) output which is a digital display interfaces that mainly connect video source and carry audio to a display device. When connecting a DP, it can deliver up to 4K UHD (4096 x 2304) in resolution. The system is designed to support passive DP adapter/ cable. You can connect to other display devices using DP-to-HDMI cable or DP-to-DVI cable.



With the VGA output on the rear panel, the system supports dual independent display outputs. To support dual display outputs and achieve best VGA/ DisplayPort output resolution in Windows, you need to install corresponding graphics drivers.

## 8 USB3.2 Gen1 Port

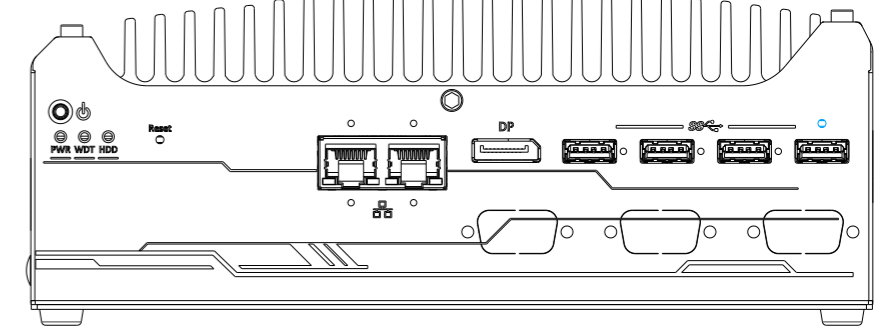


The system offers four USB 3.2 Gen1 (SuperSpeed USB) ports on its front panel with screw-lock mechanism. They are backward compatible with USB 2.0, USB 1.1 and USB 1.0 devices. UEFI USB is also supported so you can use USB keyboard/ mouse in UEFI shell environment. USB 3.2 Gen1 driver is supported natively in Windows 10. The screw-lock mechanism is available on the three ports indicated in blue and red, and due to the width of the screw-lock connector, only the USB ports indicated in red can be connected simultaneously when using the screw-lock mechanism.

### Note

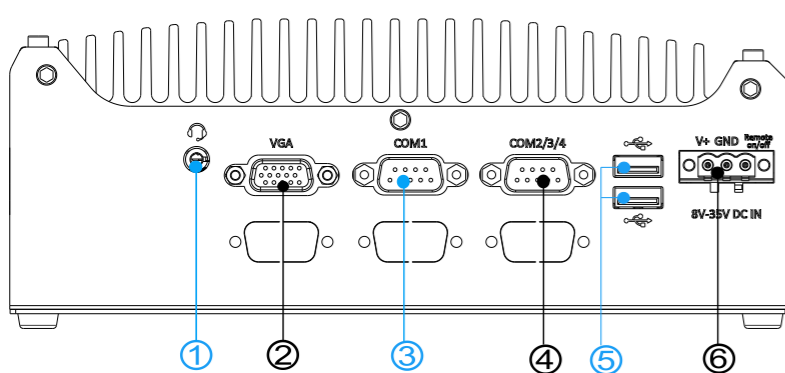
Depending on the design of your screw-lock USB connector, the CMOS reset button may be obstructed if the USB port below is connected.

## 9 CMOS Reset Button



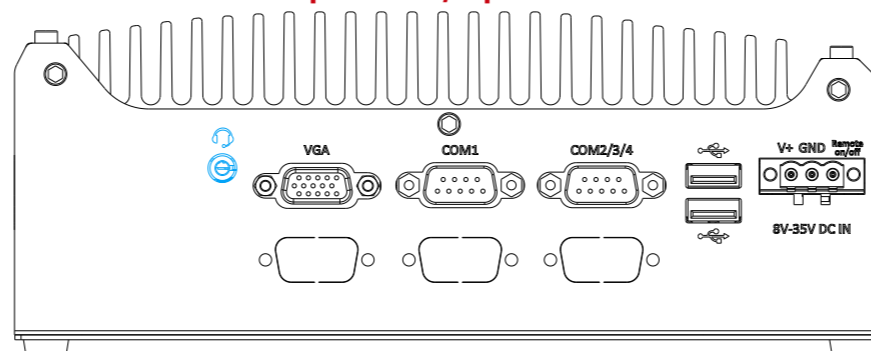
The CMOS Reset button is used to manually reset the motherboard BIOS in case of system halt or malfunction. To avoid unexpected operation, it is purposely placed behind the panel. To reset, please use the tip of a pen, press and hold for at least 5 seconds to reset the BIOS.

## 10 Overview - Rear Panel



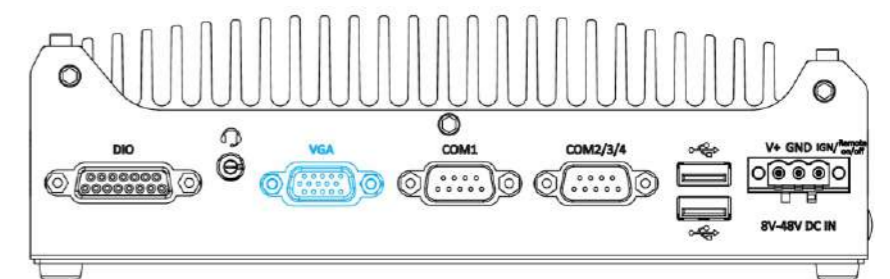
No.	Item	Description
1	4-Pole 3.5mm Microphone-in/ Speaker-out Jack	The 4-pole 3.5mm jack accepts microphone voice input and headphone speaker sound output.
2	VGA Port	VGA output supports resolution up to 1920x1200@60Hz
3	COM1 Port	Software programmable RS-232/ 422/ 485 port.
4	COM2/3/4 Port	Can be configured as: <b>COM2:</b> single RS-422/ 485 port <b>COM2/ COM3/ COM4:</b> three 3-wire RS-232 ports
5	USB2.0 Ports	The USB 2.0 ports are backward with USB 1.1 / 1.0.
6	3-pin Terminal Block DC Input & Remote on/ off	Compatible with DC power input from 8 to 35V, the terminal block is also used for remote on/ off signal.

## 11 4-Pole 3.5mm Microphone-in/ Speaker-out Jack



There is a female 4-pole audio jack for headphone (speaker) output and microphone input. To utilize the audio function in Windows, you need to install corresponding drivers.

## 12 VGA Port



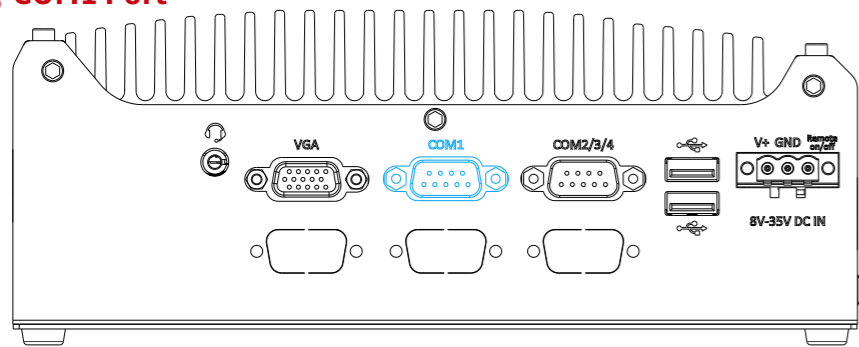
VGA connector is the most common video display connection. The VGA output supports up to 1920x1200@60Hz resolution.

With the DisplayPort on the front panel, the system supports dual independent display outputs. To support dual display outputs and achieve best VGA/ DisplayPort output resolution in Windows, you need to install corresponding graphics drivers.

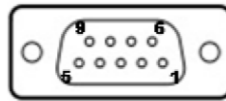
### Note

Please make sure your VGA cable includes SDA and SCL (DDC clock and data) signals for correct communication with monitor to get resolution/timing information. A cable without SDA/ SCL can cause blank screen on your VGA monitor due to incorrect resolution/timing output.

### 13 COM1 Port

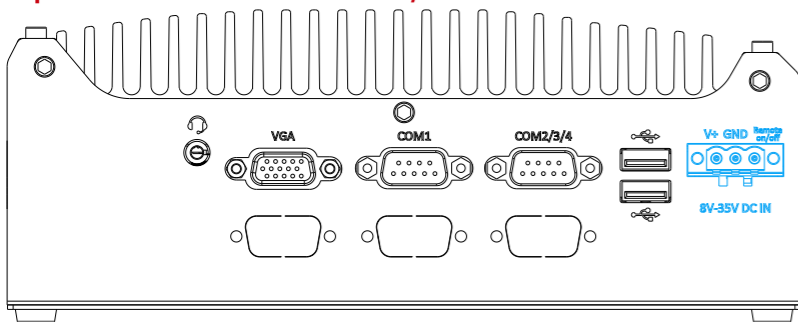


The port provides up to 921600 bps baud rate, it is a software-configurable RS-232/422/485 port via 9-pin D-Sub male connector. The operation mode, slew rate and termination of COM1 can be set in BIOS setup utility. The following table describes the pin definition of COM ports.



Pin#	COM1		
	RS-232 Mode	RS-422 Mode	RS-485 Mode (Two-wire 485)
1	DCD		
2	RX	422 TXD+	485 TXD+/RXD+
3	TX	422 RXD+	
4	DTR	422 RXD-	
5	GND	GND	GND
6	DSR		
7	RTS		
8	CTS	422 TXD-	485 TXD-/RXD-
9	RI		

### 12 3-pin Terminal Block & Remote ON/ Off



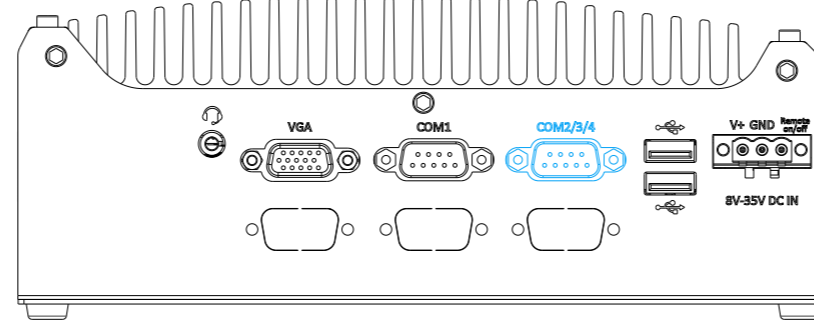
The system accepts a wide range of DC power input from 8 to 35V via a 3-pin pluggable terminal block, which is fit for field usage where DC power is usually provided. The screw clamping mechanism on the terminal block offers connection reliability when wiring DC power.

The Remote On/ Off connection allows for external switch extension. It is useful when the system is placed in a cabinet or a not easily accessed location.

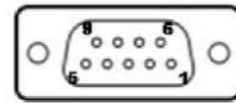
#### Warning

**Please make sure the voltage of DC power is correct before you connect it to the system. Supplying a voltage over 35V will damage the system.**

### 14 COM2/3/4 Port



The port provides up to 921600 bps baud rate, it can be configured in the BIOS as single RS-422/ 485 port (COM2) or three 3-wire RS-232 ports (COM2/ 3/ 4). An optional 1-to-3 Y-cable is available to connect three RS-232 devices.



COM2/ 3/ 4 Pin

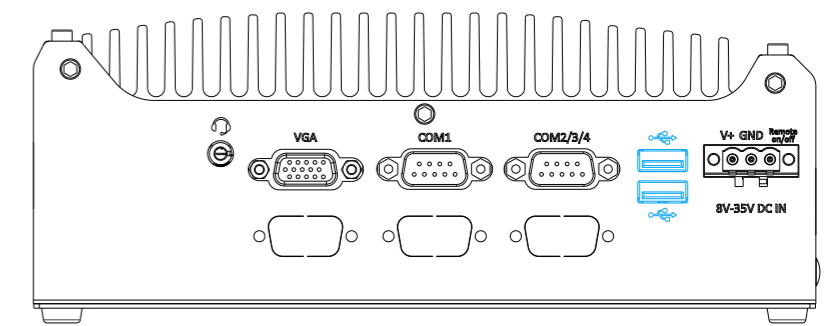
1-to-3 Y-cable

The following table describes the pin definition of the COM port

Pin#	3-port RS-232 COM2/ 3/ 4		
	COM2	COM3	COM4
1			
2	RX		
3	TX		
4		TX	
5	GND	GND	GND
6		RX	
7			TX
8			RX
9			

Pin#	Single port RS-422/ 485 COM2	
	RS-422	RS-485
1		
2	TxD+	TxD+/ RxD+
3	RxD+	
4	RxD-	
5	GND	GND
6		
7		
8	TxD-	TxD-/ RxD-
9		

### 15 USB2.0 Port



The USB2.0 ports are implemented via native xHCI (eXtensible Host Controller Interface) in the Intel 600 chipset and are backward compatible with USB 1.1 and USB 1.0 devices. UEFI USB support is also provided so you can use USB keyboard/ mouse in UEFI shell environment.

xHCI driver is supported natively in Windows 10, therefore you do not need to install xHCI driver to utilize USB functions.