

4K Vertex² 18Gbps

VERTEX²

TAILORED FOR AV PURISTS



User Manual 4K Vertex² Rev 1.00

FCC-B Radio Frequency Interference Statement

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 measures listed below.

- 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.

Notice 1

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2

Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

VOIR LA NOTICE D'INSTALLATION AVANT DE RACCORDER AU RESEAU.



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, and
- 2) this device must accept any interference received, including interference that may cause undesired operation.

CE Conformity

Hereby, ICboss Tech CO., LTD. declares that this device is in compliance with the essential safety requirements and other relevant provisions set out in the European Directive.



Disclaimer: 3rd party and/or custom firmware providing extra features are not covered in this manual.

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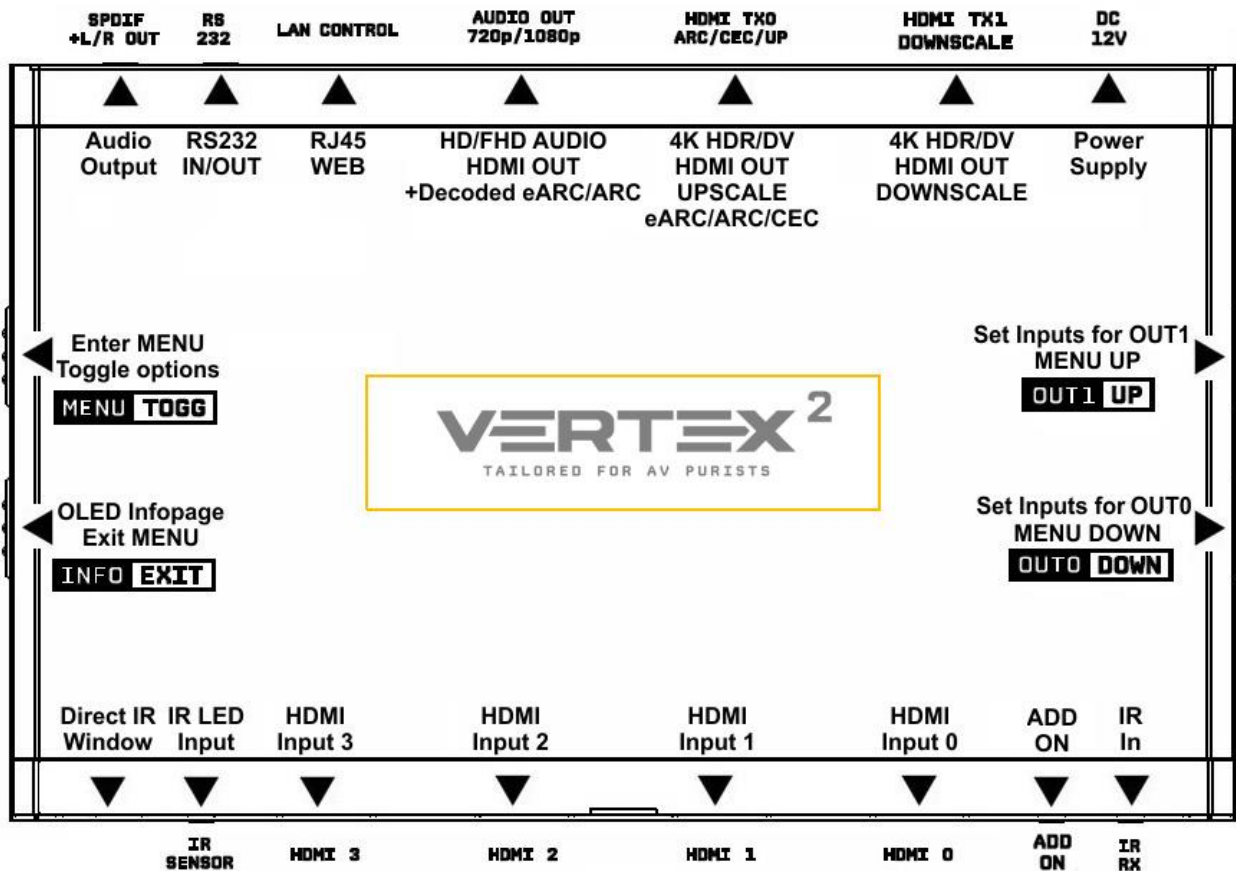
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Vertex² Overview

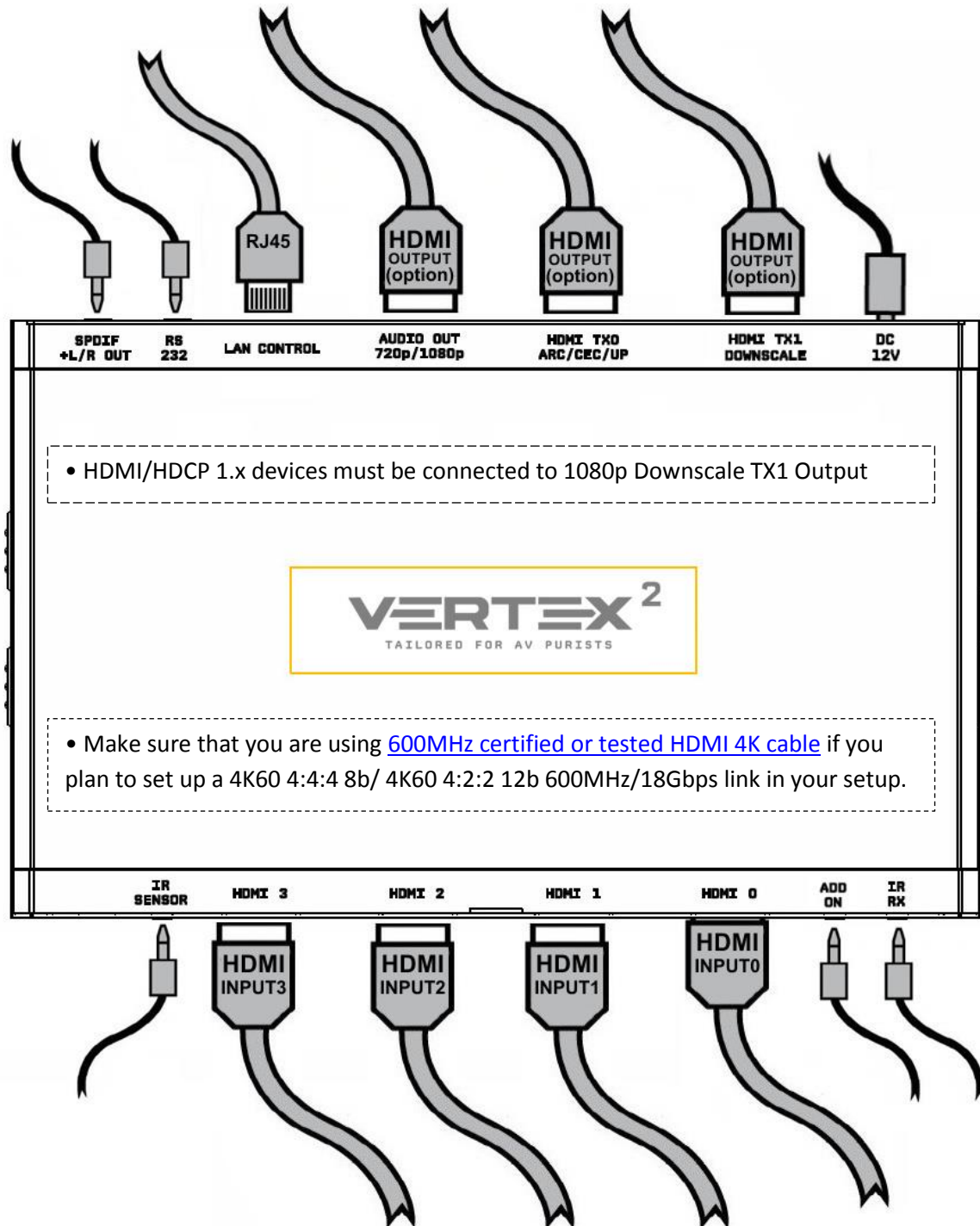
Team HDFury would like to thank you personally for purchasing the 4K Vertex²!

This unique HDMI2.0b device supports up to 4 inputs for true full 4K60 4:4:4 600MHz 18Gbps bandwidth signals. It will allow you to solve any HDCP error, extract full HDMI audio from any HDMI sources and up to Atmos HBR over TrueHD from eARC TVs to feed older AVR and Matrix any SD/HD/FHD/UHD/HDR/DV or PC signals up to 600MHz. Upscale to 4K or downscale to 1080p any channel individually, display relevant information on OLED/OSD, select between multiple edid banks for each inputs. Inject, replace or translate HDR metadata and AVI infoframe. It is also capable of auto switching any sources including X1X, ATV4K, Shield, etc... Based on incoming content type it can send relevant RS232 commands to any RS232 controllable display. Control can be completed with IR codes, push buttons on the unit, via IP or RS232 (MAC/WIN/Linux) or through embedded Webserver (for any web browser based device such as MAC/WIN/Linux computer or Android/iOS phones, tablets and others).

Additionally, Vertex² offers a unique +5V management at output to solve standby issue of any sinks.



Connecting Cables to Vertex²



- Connect Power connector from Power supply (110-240V 1.2A IN & 12V 1A OUT).
- Connect a source via HDMI input cable to ANY HDMI input.
- Connect any other HDMI, sound, IR or RS232 cable that you might need (optional)
- HDMI cable must support 18Gbps if any 18Gbps source/sink is connected (except for Audio Out)

Disclaimer: 3rd party and/or custom firmware providing extra features are not covered in this manual.

Vertex² Power/Status OLED



The Vertex² OLED will turn ON when power supply is applied; Vertex² Logo will be displayed followed by a similar default infopage to the one represented below.



[192.168.1.117]: Vertex² IP address will be displayed here if LAN CONTROL RJ45 output is connected to your LAN/WAN router/switcher. mDNS and other way are available if you cycle OLED infopage.

[FW: 0.6]: Firmware Version of Vertex² is reported here.

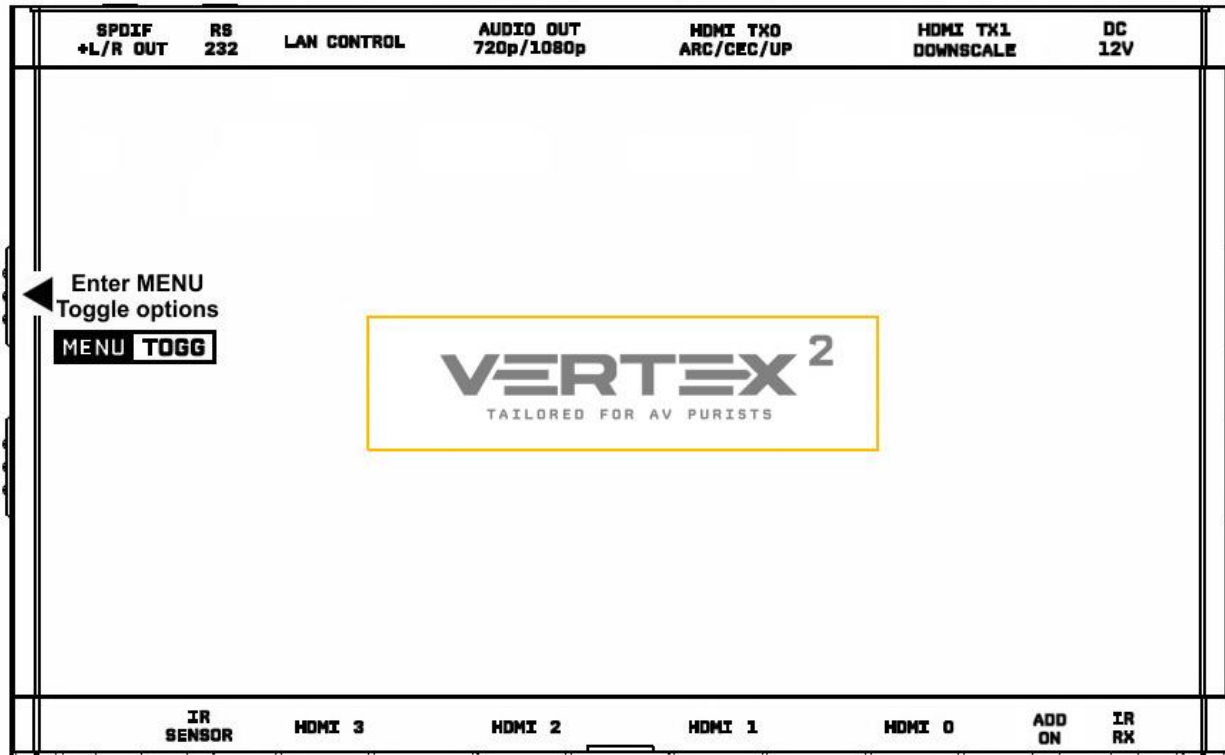
If any active input is connected, the default OLED infopage will indicate which input is active (IN1 on above pic). Vertex² will process handshake with the active input and once completed the signal information will be displayed. 4K50 4:2:2 BT2020 12b LLDV 594MHz 2.2 on above pic.

If any sink is connected at TX0 output, TX0 section of the default OLED infopage will report its EDID name (LG TV on above pic) and its max supported resolution (4K60 4:4:4 8b BT2020 HDR on above pic) on the first line. Second line will display the current signal going to it, the small arrow on the right indicate if signal is Upscaled ↑, Downscaled ↓ or passing thru untouched →

[OLED OFF]: Insufficient power, OLED timer expired (default 30s) or OLED OFF. Use the Vertex² power supply; press any button if OLED timer expired and make sure the OLED is ON (refer to p.35).

[OLED ON]: The Vertex² unit is receiving power and is ready to accept an HDMI signal.

Vertex² Menu/Toggle Button



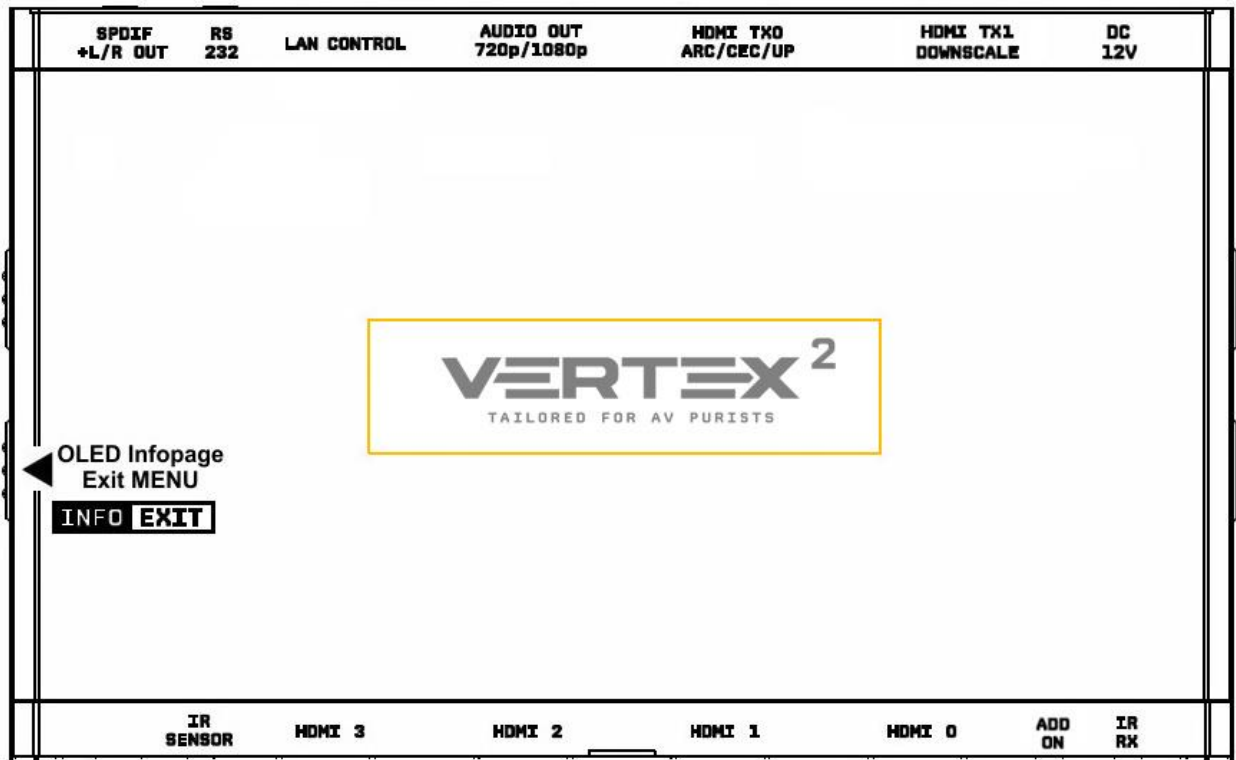
The 4K Vertex² offers 2 functions per push button.

[MENU] Wake up from sleep/fade mode and/or Enter Vertex² OLED MENU.

[TOGG] When you are in Vertex² OLED MENU, the TOGGLE button allows you to change and cycle any setting value.

Note: You can also control and change settings with IR codes, through IP Control or RS232 for MAC/WIN/Linux or from the embedded Webserver for MAC/WIN/Linux PC or via Android/iOS smartphone/tablet or any web browser based device.

Vertex² Info/Exit Button



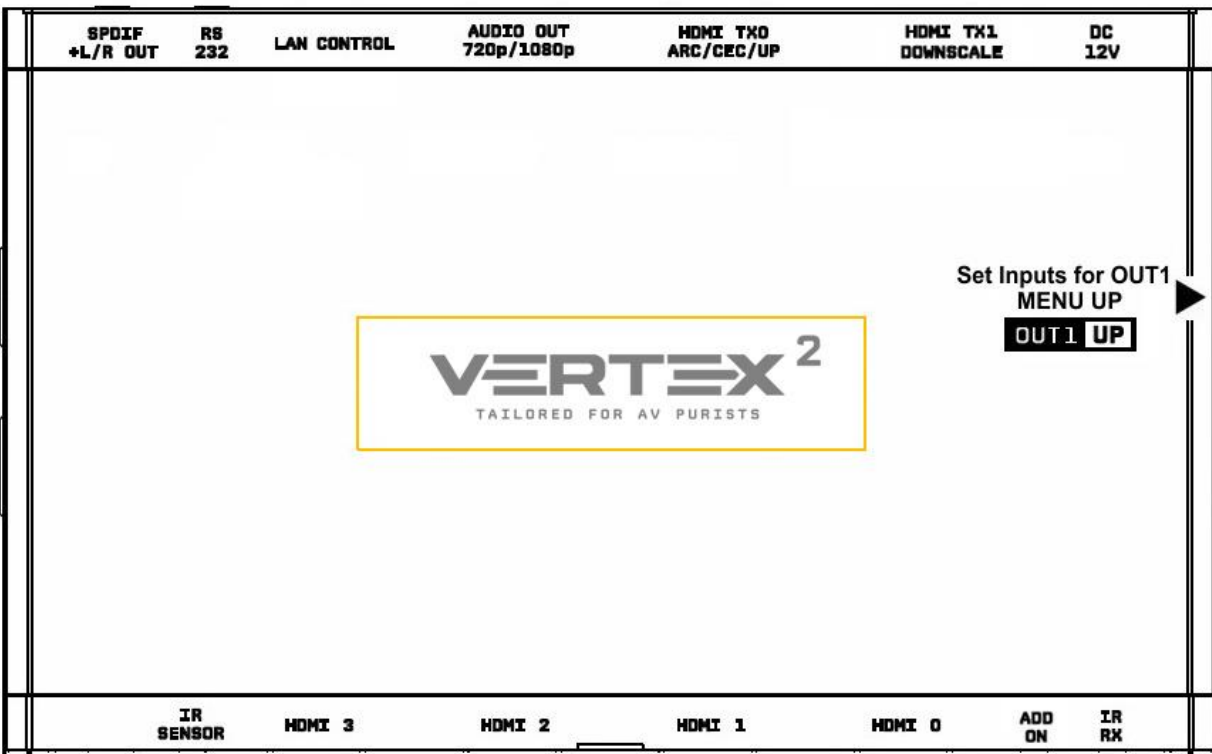
The 4K Vertex² offers 2 functions per push button.

[INFO] Wake up from sleep/fade mode and/or Cycle OLED infopage: INFO > LAN INFO > HDR INFO > ...

[EXIT] When you are in Vertex² OLED MENU, the EXIT button allows you to exit OLED MENU.

Note: You can also control and change settings with IR codes, through IP or RS232 for MAC/WIN/Linux or from the embedded Webserver for MAC/WIN/Linux PC or via Android/iOS smartphone/tablet or any web browser based device.

Vertex² Out1/Up Button



The 4K Vertex² offers 2 functions per push button.

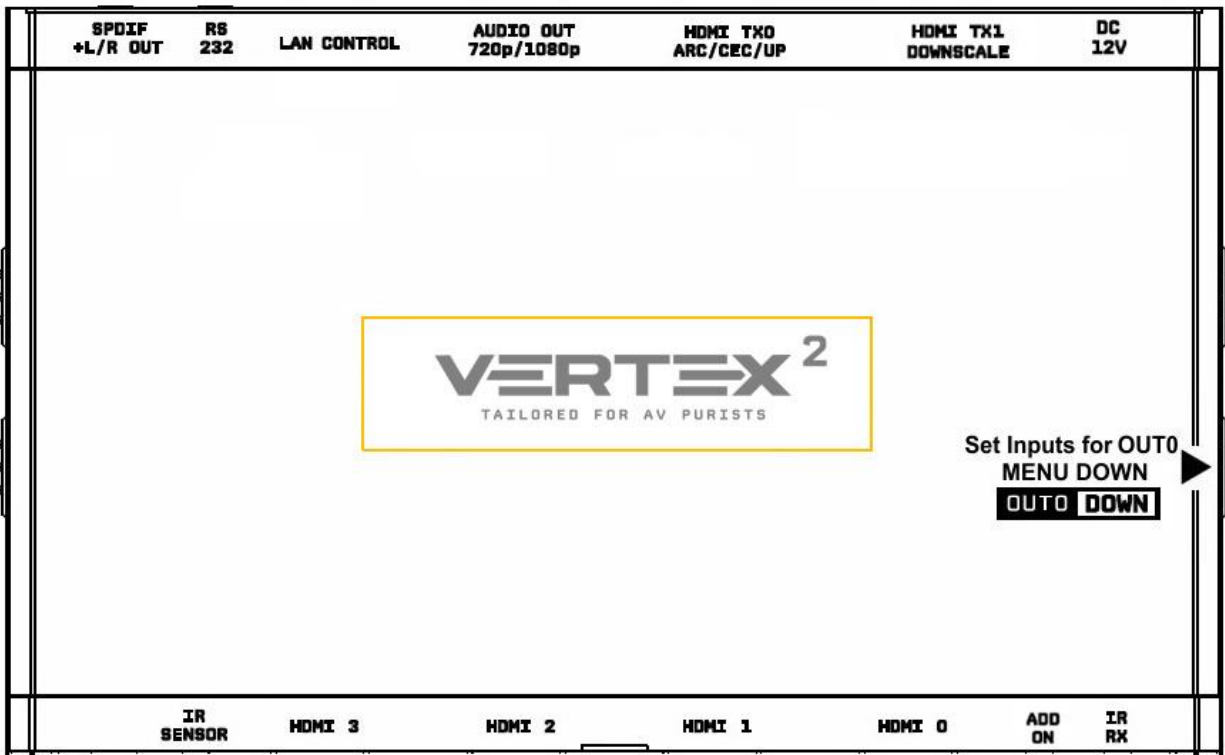
[OUT1] Wake up from sleep/fade mode and/or set and switch active or inactive inputs for TX1 output.

[UP] When you are in Vertex² OLED MENU, the UP button allows you to navigate upward.

Vertex² OLED/OSD will report info for up to two active inputs in default Matrix mode.

Note: You can also control and change settings with IR codes, through IP or RS232 for MAC/WIN/Linux or from the embedded Webserver for MAC/WIN/Linux PC or via Android/iOS smartphone/tablet or any web browser based device.

Vertex² Out0/Down Button



The 4K Vertex² offers 2 functions per push button.

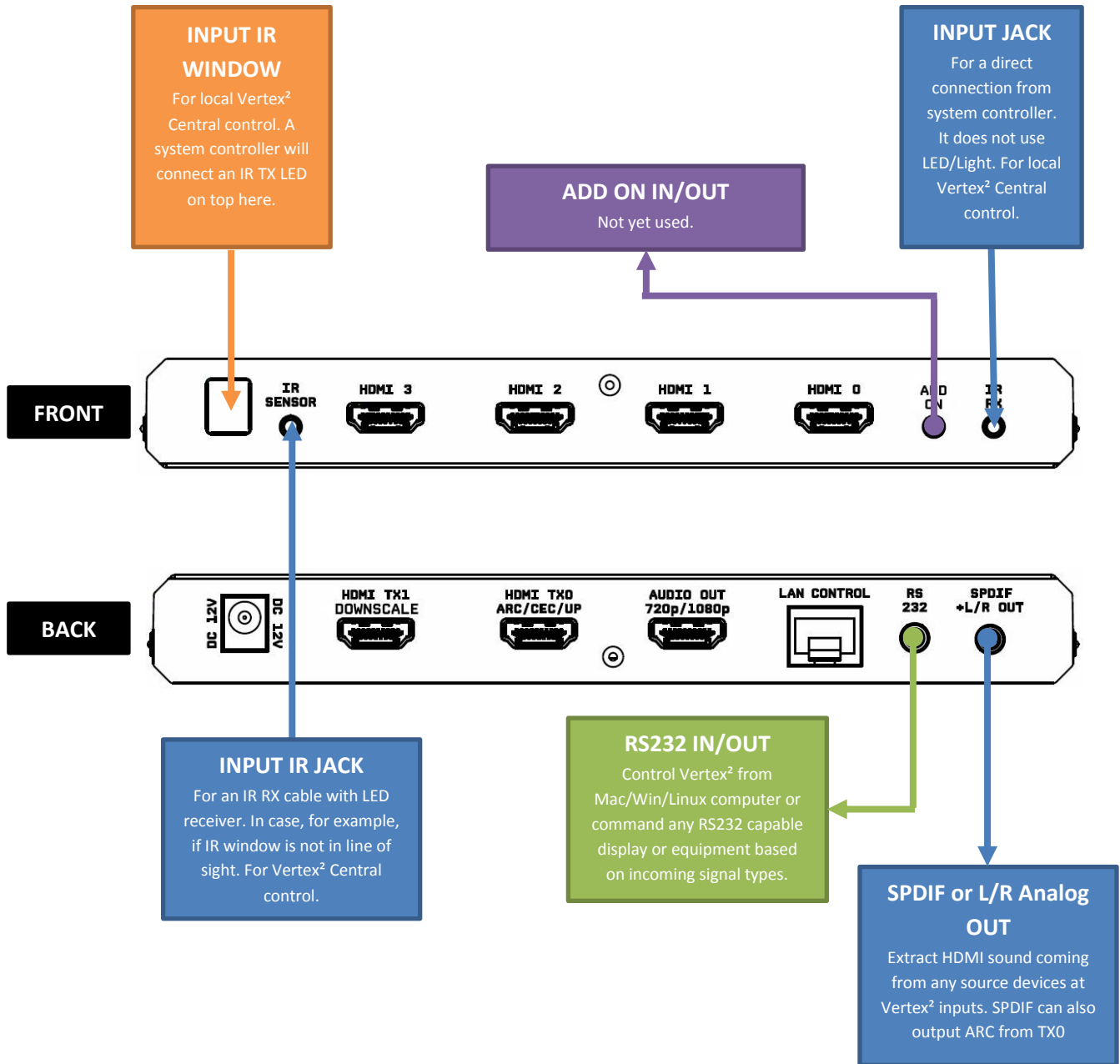
[OUT0] Wake up from sleep/fade mode and/or set and switch active or inactive inputs for TX0 HDMI output.

[DOWN] When you are in Vertex² OLED MENU, the DOWN button allows you to navigate downward.

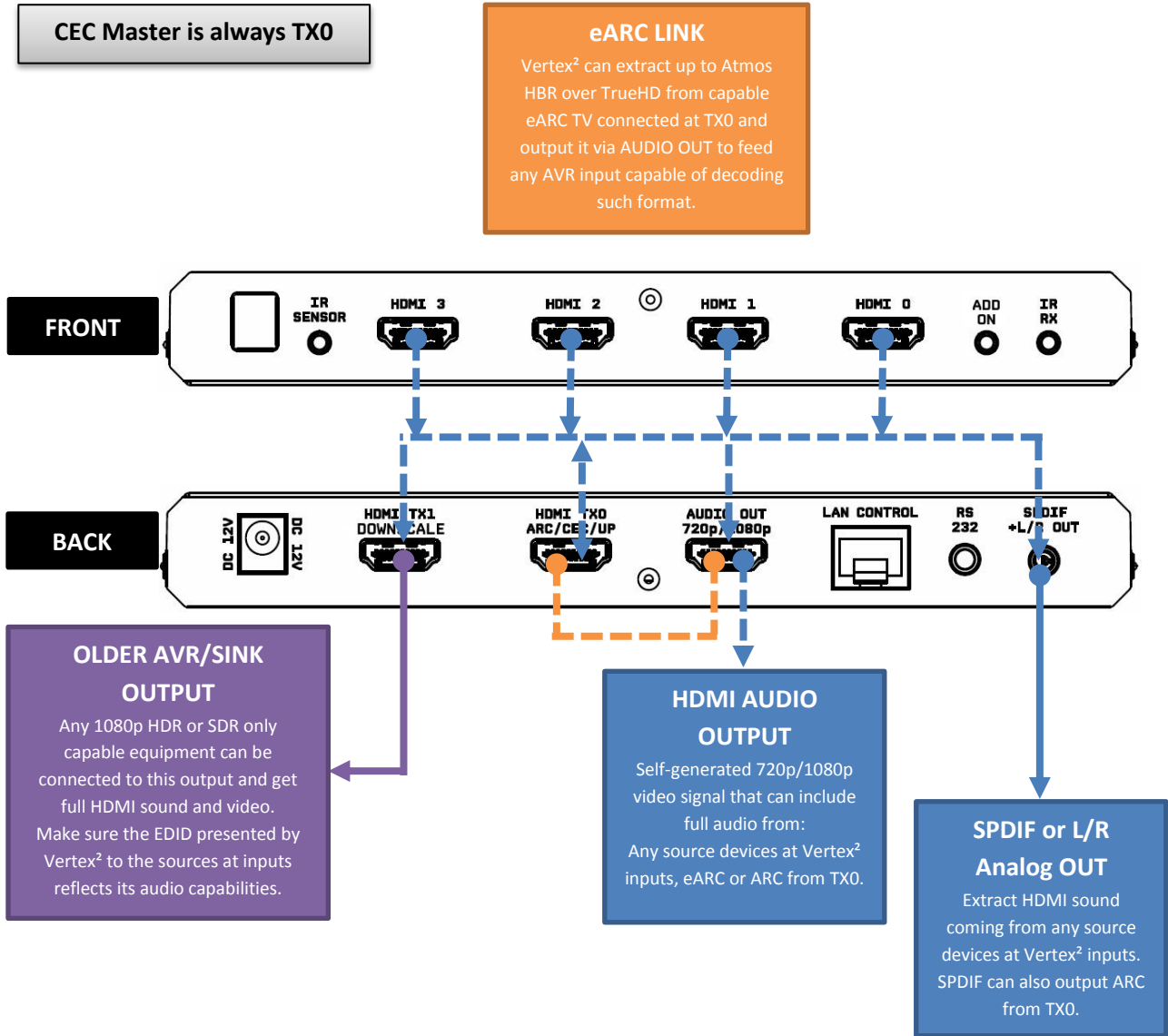
Vertex² OLED/OSD will report info for up to two active inputs in default Matrix mode.

Note: You can also control and change settings with IR codes, through IP or RS232 for MAC/WIN/Linux or from the embedded Webserver for MAC/WIN/Linux PC or via Android/iOS smartphone/tablet or any web browser based device.

Help on Jack connections



Help on AUDIO/CEC/ARC/eARC connections



No Audio format manipulation.

Vertex² cannot manipulate Audio and otherwise transform Audio format, what comes IN goes OUT untouched. Therefore if you plan to extract STEREO, incoming signal from HDMI source at Vertex² inputs should be STEREO. If incoming signal from HDMI inputs are superior to STEREO (ex ATMOS) then STEREO output cannot be used.

Vertex² OLED Menu



Press MENU once to enter Vertex² OLED Menu. Once you are in Vertex² OLED Menu press the same menu to TOGGLE choice



Once you are in the Vertex² OLED Menu. Press the UP button to navigate upward.



Once you are in the Vertex² OLED Menu. Press DOWN button to navigate downward



To EXIT the Vertex² OLED Menu. Press EXIT button or let menu idle for a while and it will EXIT automatically.

[Autoswitch] :	ON/OFF
[Autoswitch Priority]:	ON/OFF
[EDID Mode]:	Custom / Copy TX1/Copy TX0/Automix/Fixed
[EDID TABLE]:	EDID 0/EDID 1/EDID 2/EDID 3
[EDID Algo]:	4-Max All / 0-Normal / 1-Max Audio / Prio TX0 / Prio TX1
[SCALE Mode]:	None / Auto / Custom
[Mute TX0 Audio]:	ON / OFF
[Mute TX1 Audio]:	ON / OFF
[HDCP]:	AUTO / 1.4
[CEC]:	ON / OFF
[CEC LA]:	0-Video [0x0E] / 1-Audio [0x05]
[ARC HBR]:	ON/OFF
[Baud Rate]:	1-19200 / 2-57600 / 3-115200 / 0-9600
[DHCP] :	ON/OFF
[Analog Volume] :	0 [-30 / +10]
[Analog Bass]:	0 [-10 / +10]
[Analog Treble]:	0 [-10 / +10]

Accessing Vertex² Web Server

It is mandatory for accessing Vertex² web server to have an Ethernet cable connected between LAN CONTROL RJ45 connector and your local router or switcher.

By default Vertex² use DHCP to retrieve an assigned IP automatically. You can set static IP from the Vertex² webserver config page.

In case you have setup a wrong Static IP and unit is not reachable anymore, you can set DHCP ON from OLED menu to retrieve access via dynamically assigned IP again (as in default mode).

There is 3 ways of accessing the Vertex² web server:

1. **Universal way through IP address:**

Simply open up a web browser on any devices located on the same network than the Vertex² unit and type in the IP address that appears on the Vertex² OLED directly in the address bar of your web browser. (ex: 192.168.1.137)

2. **Hostname access:**

Instead of typing IP address directly, you can use the Hostname listed on Vertex² OLED LAN INFO page (press INFO button to cycle OLED page till you see LAN INFO and Hostname listed).

Simply open up a web browser from any devices located on the same network than the Vertex² unit and type in the Hostname that appears on the Vertex² OLED directly in the address bar of your web browser. (ex: <http://VERTEX2-XX/>)

XX represents the 2 last digits of your Vertex² unit unique serial number.

3. **mDNS access:**

For iOS/MAC devices, you might want to use mDNS access. Retrieve the mDNS address from Vertex² OLED LAN INFO page (press INFO button to cycle OLED page till you see LAN INFO and mDNS address listed). Simply open up a web browser on any MAC/iOS devices located on the same network than the Vertex² unit and type in the mDNS address that appears on the Vertex² OLED directly in the address bar of your web browser. (ex: <http://VERTEX2-XX.local/>)

XX represents the 2 last digits of your Vertex² X unit unique serial number.

Please note that only IP address access is universal and should work across any web browser based devices as long as they are located on the same network. Others methods should work just fine in many cases but we cannot guarantee that they will always do, in case of issue accessing the webserver, please use IP address.

Vertex² Web Server Top section



Immediately upon accessing the webserver you will end up on the default INFO page with the above top tier section displayed.

From that top tier section you will be able to retrieve the following information (also displayed on Vertex² OLED default page and once you cycle info page with INFO button to reach LAN page info).

Hostname: Display Vertex² hostname for URL access

mDNS: Display Vertex² mDNS for URL access

IP Address: Display the current IP Address of the Vertex²

FW: Display the current FW running on the Vertex². (ex 0.22)

Vertex² Web Server INFO Section

INFO	EDID	SCALER	HDR/DV	OSD	CEC-RS232	MACROS	CONFIG
SOURCE:	MSFT Xbox One						
IN TX0:	4K59.934 RGB 8b HDR 593MHz						
SOURCE:	MSFT Xbox One						
IN TX1:	4K59.934 RGB 8b HDR 593MHz						
VIDEO TX0:							
VIDEO TX1:	4K59.934 RGB 8b HDR 593MHz CR						
AUDIO TX0:	L-PCM 48kHz 2.0ch 16bit						
AUDIO TX1:	L-PCM 48kHz 2.0ch 16bit						
EDID TX0:	EDID not available						
EDID TX1:	MAESTRO RX CONNECTED						
PORT SELECTOR:							
TX0:	0 - INPUT 0 ▼						
TX1:	- COPY TX0 - ▼						
INFO STATUS OK							Refresh

SOURCE: When available, Display active source name currently outputting thru TX0 or TX1 output.

IN TX0/IN TX1: Display the source name original video signal going thru TX0 or TX1 output.

VIDEO TX0/TX1: Display the real video signal (if any operation on it) going out thru TX0 or TX1 output.

AUDIO TX0/TX1: Display the audio signal info going out thru TX0 or TX1 output.

EDID TX0/TX1: Display the EDID max capabilities of any connected sink at TX0 or TX1 output.

PORT SELECTOR: Allow you to select which input is routed to TX0 or TX1 output.

REFRESH: Refresh the current page.

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Vertex² Web Server EDID Section

[COPY TX0 SINK]: Use EDID from the device connected at TX0 output.

[COPY TX1 SINK]: Use EDID from the device connected at TX1 output.

[FIXED EDID]: Use a 4K60 4:2:0 8b 300MHz 2ch Audio EDID.

[CUSTOM]: Define individual EDID for each input from a list of 10 custom and 90 predefined EDID.

[AUTOMIX]: Use dynamic EDID created by a choice of 5 EDID Algo and 14 EDID Flags.

[DOWNLOAD ACTIVE EDID TABLES]: Download any EDID from any inputs or outputs.

[UPLOAD EDID TABLES]: Select an EDID file and a Custom EDID Table# click SEND EDID to upload it.

[REFRESH]: Refresh the current page.

List of Custom EDID available.

User can select an EDID from all below EDID tables or force the creation of an Automix EDID with below options.

[FIXED EDID with L/R stereo]

This mode is a 4K60 4:2:0 8b 300MHz stereo EDID table. It can be used as a security EDID to ensure a picture in every setup/situation. (Except for FHD and 4K30 Max sink device)

[CUSTOM USE]

Pick and use EDID from a selection of preloaded EDID tables or load any EDID bank of your choice. By default the selected EDID table is a 4K60 4:4:4 600MHz with Full Audio capabilities. When you select an EDID bank from the dropdown list of 100 different EDID tables available, there is nothing else to do, once you click one, the EDID of your choice will be loaded and HPD events will reset the signal to present your selected EDID automatically. Each input can have an individual EDID assigned.

1. CUSTOM 1 [Default FULL no DV] + Full Sound + 3D
2. CUSTOM 2 [FULL + LG DV] + Full Sound + 3D
3. CUSTOM 3 [FULL + VIZIO DV] + Full Sound + 3D
4. CUSTOM 4 [Q9FN ALLM VRR HDR10+] + Full Sound + 3D
5. CUSTOM 5 [SONY A1 LLDV V2] + Full Sound + 3D
6. CUSTOM 6 [LG35C7 DV V1] + Full Sound + 3D
7. CUSTOM 7 [VIZIO M50E1 DV V0] + Full Sound + 3D
8. CUSTOM 8 [LG C8 LLDV] + Full Sound
9. CUSTOM 9
10. CUSTOM 10
11. 4K60-444 600MHz HDR BT2020 All Sound
12. 4K60-444 600MHz HDR BT2020 SPDIF
13. 4K60-444 600MHz HDR BT2020 Stereo
14. 4K60-444 600MHz BT2020 All Sound
15. 4K60-444 600MHz BT2020 SPDIF
16. 4K60-444 600MHz BT2020 Stereo
17. 4K60-444 600MHz All Sound
18. 4K60-444 600MHz SPDIF
19. 4K60-444 600MHz Stereo
20. 4K50-444 600MHz HDR BT2020 All Sound
21. 4K50-444 600MHz HDR BT2020 SPDIF
22. 4K50-444 600MHz HDR BT2020 Stereo
23. 4K50-444 600MHz BT2020 All Sound
24. 4K50-444 600MHz BT2020 SPDIF
25. 4K50-444 600MHz BT2020 Stereo
26. 4K50-444 600MHz All Sound
27. 4K50-444 600MHz SPDIF
28. 4K50-444 600MHz Stereo
29. 4K60-420 12bit HDR BT2020 All Sound
30. 4K60-420 12bit HDR BT2020 SPDIF
31. 4K60-420 12bit HDR BT2020 Stereo
32. 4K60-420 12bit BT2020 All Sound

33. 4K60-420 12bit BT2020 SPDIF
34. 4K60-420 12bit BT2020 Stereo
35. 4K60-420 12bit All Sound
36. 4K60-420 12bit SPDIF
37. 4K60-420 12bit Stereo
38. 4K60-420 8-bit 300MHz HDR BT2020 All Sound
39. 4K60-420 8-bit 300MHz HDR BT2020 SPDIF
40. 4K60-420 8-bit 300MHz HDR BT2020 Stereo
41. 4K60-420 8-bit 300MHz BT2020 All Sound
42. 4K60-420 8-bit 300MHz BT2020 SPDIF
43. 4K60-420 8-bit 300MHz BT2020 Stereo
44. 4K60-420 8-bit 300MHz All Sound
45. 4K60-420 8-bit 300MHz SPDIF
46. 4K60-420 8-bit 300MHz Stereo
47. 4K30-444 300MHz HDR BT2020 All Sound
48. 4K30-444 300MHz HDR BT2020 SPDIF
49. 4K30-444 300MHz HDR BT2020 Stereo
50. 4K30-444 300MHz BT2020 All Sound
51. 4K30-444 300MHz BT2020 SPDIF
52. 4K30-444 300MHz BT2020 Stereo
53. 4K30-444 300MHz All Sound
54. 4K30-444 300MHz SPDIF
55. 4K30-444 300MHz Stereo
56. 4K30-RGB 300MHz HDR BT2020 ALL audio
57. 4K30-RGB 300MHz HDR BT2020 SPDIF
58. 4K30-RGB 300MHz HDR BT2020 Stereo
59. 4K30-RGB 300MHz BT2020 ALL audio
60. 4K30-RGB 300MHz BT2020 SPDIF
61. 4K30-RGB 300MHz BT2020 Stereo
62. 4K30-RGB 300MHz ALL audio
63. 4K30-RGB 300MHz SPDIF
64. 4K30-RGB 300MHz Stereo
65. 4K24-422 12-bit HDR BT2020 All Sound
66. 4K24-422 12-bit HDR BT2020 SPDIF
67. 4K24-422 12-bit HDR BT2020 Stereo
68. 4K24-422 12-bit BT2020 All Sound
69. 4K24-422 12-bit BT2020 SPDIF
70. 4K24-422 12-bit BT2020 Stereo
71. 4K24-422 12-bit All Sound
72. 4K24-422 12-bit SPDIF
73. 4K24-422 12-bit Stereo
74. 1080p60-444 12-bit HDR BT2020 All Sound
75. 1080p60-444 12-bit HDR BT2020 SPDIF
76. 1080p60-444 12-bit HDR BT2020 Stereo
77. 1080p60-444 12-bit BT2020 All Sound
78. 1080p60-444 12-bit BT2020 SPDIF
79. 1080p60-444 12-bit BT2020 Stereo
80. 1080p60-444 12-bit All Sound

81. 1080p60-444 12-bit SPDIF
82. 1080p60-444 12-bit Stereo
83. 1080p24-444 12-bit HDR BT2020 All Sound
84. 1080p24-444 12-bit HDR BT2020 SPDIF
85. 1080p24-444 12-bit HDR BT2020 Stereo
86. 1080p24-444 12-bit BT2020 All Sound
87. 1080p24-444 12-bit BT2020 SPDIF
88. 1080p24-444 12-bit BT2020 Stereo
89. 1080p24-444 8-bit All Sound
90. 1080p24-444 8-bit SPDIF
91. 1080p24-444 8-bit Stereo
92. 1080i60-444 8-bit All Sound
93. 1080i60-444 8-bit SPDIF
94. 1080i60-444 8-bit Stereo
95. 720p60-444 8-bit All Sound
96. 720p60-444 8-bit SPDIF
97. 720p60-444 8-bit Stereo
98. 480p60-444 8-bit All Sound
99. 480p60-444 8-bit SPDIF
100. 480p60-444 8-bit Stereo

[Automix Mode]:

Create EDID based on mutual capabilities from sinks connected at output so it will always show a picture and audio (ideal for pass thru). Some Flags can be checked or unchecked so you can force and override some parameters to match your needs. Ex: If your TV is stereo and your AVR full sound and both are connected to Vertex² outputs port, then depending of the algo in use, for some of them at least, by default, Automix will report Stereo as sound capabilities, by checking Full Audio flag you will force Automix to always report Full Audio no matter the real sound capabilities of the connected sink devices.

Enforceable flags available in Automix mode:

AUDIO Flags: 2.0 Stereo, 5.1 Multi, 7.1 Full Sound, TX0, TX1, Audio Out

HDR Flags: HDR10+, HLG

COLOR Flags: BT.2020/xvYcc, YCbCr Remove, 3D Remove

DV Flags: DV Force Metadata, DV Remove, DV Limit 300MHz

[2.0 Stereo]: Force the mixed EDID to present stereo sound capabilities.

[5.1 Multi]: Force the mixed EDID to present 5.1 multi-channel sound capabilities.

[7.1 Full]: Force the mixed EDID to present Full 7.1 sound capabilities.

[TX0]: Force the mixed EDID to present the max audio capabilities from sink at TX0 output.

[TX1]: Force the mixed EDID to present the max audio capabilities from sink at TX1 output.

[AUDIO OUT]: Force the mixed EDID to present the max audio capabilities from sink at Audio output.

[HDR 10+]: Force the mixed EDID to present HDR10+ support.

[HLG]: Force the mixed EDID to present the HLG support.

[2020/xvYCC]: Force the mixed EDID to present BT2020 and xvYCC support.

[no YCbCr]: Force the mixed EDID to present no support for YCbCr (useful to force RGB).

[no 3D]: Force the mixed EDID to present no support for 3D.

[DV Force Metadata]: Force the mixed EDID to present Dolby Vision support.

Disclaimer: 3rd party and/or custom firmware providing extra features are not covered in this manual.

[DV Remove]: Force the mixed EDID to present no support for Dolby Vision.

[DV Limit 300MHz]: Force the mixed EDID to only present support for Dolby Vision at 300MHz.

Selectable algorithms available in Automix mode:

- Min Mixed Capabilities
- Max Audio/Min Video
- TX0 Output Priority
- TX1 Output Priority
- Max Audio/Max Video

Note: All options are also available via IR/IP or RS232

Vertex² Web Server SCALER Section

INFO	EDID	SCALER	HDR/DV	OSD	CEC/EARC	MACROS	CONFIG
<input type="radio"/> NO SCALING							
<input type="radio"/> CUSTOM SCALING							
TX0 PARAMETERS:							
<input checked="" type="checkbox"/> 4K60	CS: FOLLOW	DC: Follow Source					
<input checked="" type="checkbox"/> 4K30	CS: FOLLOW	DC: Follow Source					
<input checked="" type="checkbox"/> 1080P60	SCALE to: 4k60	CS: FOLLOW	DC: 8-bit				
<input checked="" type="checkbox"/> 1080p30	SCALE to: 4k30	CS: FOLLOW	DC: 8-bit				
TX1 PARAMETERS:							
<input checked="" type="checkbox"/> 4K60	REMAIN 4k60	CS: FOLLOW	DC: Follow Source				
<input checked="" type="checkbox"/> 4K30	REMAIN 4k30	CS: FOLLOW	DC: Follow Source				
<input checked="" type="checkbox"/> 1080P60	CS: FOLLOW	DC: Follow Source					
<input checked="" type="checkbox"/> 1080P30	CS: FOLLOW	DC: Follow Source					
SEND							
<input checked="" type="radio"/> AUTO SCALING							
TX1 4K60 SDR:	AUTOSENSE						
TX1 4K60 HDR:	AUTOSENSE						
TX1 4K30:	AUTOSENSE						
No Upscaling	<input type="checkbox"/>						
SCALER STATUS OK							Refresh

[No Scaling]: Set your unit to **No Scaling** for the signal to pass-through untouched

[Custom Scaling]: Set your Vertex² unit to **Custom Scaling** to manually define the scaling parameters. You can select between various type of resolutions, color space and deep color settings for TX0 Upscale output port and TX1 Downscale port.

Available Color Space options: Follow Input (default), RGB FULL, RGB BT2020, 4:4:4 BT.709, 4:4:4 BT2020, 4:2:2 BT.709, 4:2:2 BT2020, 4:2:0 BT.709, 4:2:0 BT2020.

Available Deep Color options: Follow Input (default), 8-bit/24-bit, 10-bit/30-bit, 12-bit/36-bit, 16-bit/48-bit

Available 1080P60 Upscale options: SCALE to 4K60, REMAIN 1080P60

Available 1080P30 Upscale options: SCALE to 4K30, REMAIN 1080P30

Available 4K60 Downscale options: REMAIN 4K60, SCALE to 1080P60

Available 4K30 Downscale options: SCALE to 4K30, SCALE to 1080P30

Disclaimer: 3rd party and/or custom firmware providing extra features are not covered in this manual.

[SEND]: Upload your custom scaling changes to the Vertex² unit.

[Auto Scaling]: Set your unit to **Auto Scaling** to use automatic pre-sets for TX1. By default unit will use auto-sense.

[TX1 4K60 SDR PRESET]: This forces any 4K50 or 4K60 input to come out as 4K60 420 8bit 300MHz or 1080p60 444 12-bit or 1080p60 444 8-bit. A neat profile for people who only have a 300MHz display with 4K60 420 8-bit support or older HDMI revision equipment that only support 1080p (deep color or not). If EDID allows the player to send HDMI 2.0 formats, they will be accepted by the display due to Vertex² scaling/chroma changes.

[TX1 4K60 HDR PRESET]: This forces 4K50 and 4K60 422 HDR input to come out as 4K60 420 12-bit, 4k60 420 8-bit 300MHz or 1080p60 444 12-bit or 1080p60 444 8-bit. A neat profile for people who only have a 300MHz display with 4K60 420 10 or 8-bit support. If EDID allows the player to send HDMI 2.0 formats, such as all HDR modes, they will be accepted by the display due to Vertex² scaling/chroma changes.

[TX1 4K30 PRESET]: This forces any 4K24/25/30 to come out as 4K24/25/30 444/RGB 8-bit 300MHz, 1080p30 444 12-bit or 4K24/25/30 422 12-bit 300MHz. A neat profile if you have a 300MHz display. If EDID allows the player to send HDMI 2.0 formats, they will be accepted by the display due to Vertex² scaling/chroma changes.

[TX0 NO UPSCALING]: By default when using Auto Scaling, Vertex² will upscale TX0 when possible, to disable this behavior or to let the sink/display performs the upscaling, you can check this option.

[REFRESH]: Refresh the current page.

Vertex² Web Server HDR/DV Section

INFO	EDID	SCALER	HDR/DV	OSD	CEC-RS232	MACROS	CONFIG
CAPTURED INPUT HDR METADATA:							
<input type="text" value="87:01:1a:b0:02:00:c2:33:c4:86:4c:1d:b9:0b:d0:84:80:3e:13:3d:42:40:a0:0f:32:00:e8:03:90:01:00"/>							
EOTF 2: SMPTE ST 2084 [PQ], MT: DCI-P3, WP: D65							
GRN: 13250, 34500 [0.265, 0.69]							
BLU: 7500, 3000 [0.15, 0.06]							
RED: 34000, 16000 [0.68, 0.32]							
WP: 15635, 16450, [0.3127, 0.329]							
Max/Min Lum: 4000 / 0.005 nits							
MaxCLL/FALL: 1000 / 400 nits							
<hr/>							
HDR METADATA GENERATOR:							
<input type="checkbox"/> Use custom HDR for TX0 and TX1 [ignore RX HDR]							
<input type="checkbox"/> Use custom HDR for TX0 and TX1 when input is HDR10 [ignore RX HDR]							
<input type="checkbox"/> Use custom HDR for TX0 and TX1 when input is HLG [ignore RX HDR]							
<input type="checkbox"/> Use custom HDR for TX0 and TX1 when input is HLG and display has no HLG support							
<input type="checkbox"/> Disable output HDR for TX0 and TX1 when input is HDR10							
<input type="checkbox"/> Disable output HDR for TX0 and TX1 when input is HLG							
<input type="checkbox"/> Disable all output HDR [send nothing]							
EOTF: <input type="text" value="SMPTE ST 2084"/> Primaries: <input type="text" value="DCI P3"/> WP: <input type="text" value="D65"/>							
Max Luminance [nits]: <input type="text" value="4000"/>							
Min Luminance [nits]: <input type="text" value="0.0001"/>							
MaxCLL [nits]: <input type="text" value="1000"/>							
MaxFALL [nits]: <input type="text" value="400"/>							
<input type="text" value="87:01:1a:b0:02:00:c2:33:c4:86:4c:1d:b9:0b:d0:84:80:3e:13:3d:42:40:a0:0f:32:00:e8:03:90:01:00"/>							
<input type="button" value="Create IF"/> <input type="button" value="Send HDR"/>							
<hr/>							
CAPTURED AVI METADATA:							
<input type="text" value="82:02:0d:06:10:28:00:61:00:00:00:00:00:00:00:00:00:00:00:00"/>							
VIC: 97 / 0x61							
Colorimetry: RGB							
Quantization range: Default / Not specified							
CUSTOM AVI METADATA GENERATOR:							
<input type="checkbox"/> Use custom AVI [for advanced users only]							
<input type="checkbox"/> Disable AVI sending [send nothing]							
VIC: <input type="text" value="4k60"/> Primaries: <input type="text" value="RGB"/> Range: <input type="text" value="Default / Not specified"/>							
<input type="text" value="82:02:0d:ae:40:c0:60:61:00:00:00:00:00:00:00:00:00:00:00:00:00"/>							
<input type="button" value="Create IF"/> <input type="button" value="Send AVI"/>							
<hr/>							
CAPTURED INPUT DOLBY VISION METADATA [from source]:							
<input type="text"/>							
DOLBY VISION EDID DATABLOCK [sink tx0]:							
<input type="text"/>							
<hr/>							
OTHER CAPTURED METADATA:							
SPD INFOFRAME: <input type="text" value="83:01:19:3e:4d:53:46:54:00:00:00:00:58:62:6f:78:20:4f:6e:65:00:00:00:00:00:00:00:08:00:00"/>							
AUD INFOFRAME: <input type="text" value="84:01:0a:70:01:00"/>							
HVS INFOFRAME: <input type="text"/>							
VSI INFOFRAME: <input type="text"/>							
HFV INFOFRAME: <input type="text"/>							
<hr/>							
IF STATUS OK <input type="button" value="Refresh"/>							

[CAPTURED HDR METADATA]: If the source at input is sending HDR InfoFrame metadata then the information is captured, extracted and displayed in this text box. HDR metadata is also deciphered and displayed in human readable format.

[CUSTOM HDR METADATA GENERATOR]: This section will allow you to create your own custom HDR metadata and inject it on the current signal by adding it or replacing the existing HDR metadata.

[Use custom HDR for TX0 and TX1]: Unchecked by default, once activated it will turn ON the HDR mode of any HDR display. Upon clicking **Use custom HDR for TX0 and TX1** the **CUSTOM HDR IF** that is defined by dropdowns and input fields below and then created **[Create IF]** and displayed in the text box in HEX format gets sent. This way you can define what the InfoFrame actually is. This is stored also in Vertex² and is persistent over hot-plugs and power cycles. If incoming signal is already HDR, the original HDR metadata that comes with will be ignored **[ignore RX HDR]**.

[Use custom HDR for TX0 and TX1 when input is HDR10]: Unchecked by default, once activated it will turn ON the HDR mode of any HDR display only if incoming signal is already HDR, the original HDR metadata that comes with will be ignored **[ignore RX HDR]**.

[Use custom HDR for TX0 and TX1 when input is HLG]: Unchecked by default, once activated it will turn ON the HDR/HLG mode of any HDR/HLG display only if incoming signal is already HLG, the original HLG metadata that comes with the input signal will be ignored **[ignore RX HLG]**. Ex: render HLG content on HDR display.

[Use custom HDR for TX0 and TX1 when input is HLG and display has no HLG support]: Unchecked by default, once activated it will turn ON the HDR mode of any HDR/HLG display only if incoming signal is already HLG and TV have no support for it. Ex: If two TVs are connected and one if HLG and other non-HLG. Then if you turn off the HLG TV the metadata will be automatically changed.

[Disable output HDR for TX0 and TX1 when input is HDR10]: Unchecked by default, once activated Vertex² will intercept and cancel all incoming HDR10 metadata, HLG metadata will still pass-thru.

[Disable output HDR for TX0 and TX1 when input is HLG]: Unchecked by default, once activated Vertex² will intercept and cancel all incoming HLG metadata, HDR10 metadata will still pass-thru.

[Disable all output HDR]: Unchecked by default, once activated Vertex² will intercept and cancel all incoming HDR metadata. **[send nothing]**

Note: Disable HDR modes was introduced to allow some JVC PJ owners to apply their own Gamma curves for HDR content and allow their PJ Dynamic Iris to work when content is HDR and/or HLG. They can be used with others display that allow custom Gamma Curve to be applied on incoming signal or to boost nits value for some LG TVs or to render HLG content on HDR display, etc..

[EOTF]: Select between **SDR Luminance Range**, **HDR Luminance Range**, **HLG ITU-R BT.2100-0** or **SMPTE ST 2084** values to be used in the custom HDR metadata creation.

[Primaries]: Select between **DCI P3**, **ITU-R BT 709-5** or **ITU-R BT2020-2** values to be used in the custom HDR metadata creation.

[White Point]: Select the white point value to be used in the custom HDR metadata creation.

[Max Luminance]: Select the Max Luminance value to be used in the custom HDR metadata creation (valid from 1 to 65535)

[MaxCLL]: Select the MaxCLL value to be used in the custom HDR metadata creation (valid from 1 to 65535)

[Min Luminance]: Select the Min Luminance value to be used in the custom HDR metadata creation (valid from 1 to 65535)

[MaxFALL]: Select the MaxFALL value to be used in the custom HDR metadata creation (valid from 1 to 65535)

[Create IF]: Use the previous defined values to create the Custom HDR metadata.

[Send HDR]: Send the custom created HDR metadata. Please note that **Enable Custom HDR** or any Custom HDR modes must be activated first, to stop the sending of the custom HDR metadata, uncheck **Enable Custom HDR**. If **Enable Custom HDR** is activated then by pressing the **Send HDR** button, the metadata injection does not stop, it just changes values, useful to avoid TV resync.

[Default Value]: Restore the default HEX value of the custom HDR metadata.

[CAPTURED AVI METADATA]: If the source is sending AVI infoFrame then the information is captured, extracted and displayed in this text box on GUI. HEX value is deciphered and VIC, Colorimetry and Range are exposed in human readable format.

[CUSTOM AVI INFOFRAME GENERATOR]: Build and send out any custom AVI Infoframe of your choice.

[Use custom AVI]: Upon clicking **Use custom AVI**, the IF that is defined in the Custom AVI text box gets used. This way you can define what the InfoFrame actually is. This is stored also in Vertex² and is persistent over hotplugs and power cycles. This way customer can for example activate BT2020 mode in the TV even though content doesn't sent the correct InfoFrame. The AVI mod is really meant for advanced users only because incorrect values can blank the screen and since the settings are saved even power up won't help until reset.

[Disable AVI]: When checked, Disable AVI will prevent AVI InfoFrame from source to reach the connected sink at Vertex² output and also stop sending Custom AVI if set previously. This feature can be useful for some DVI display or some monitor that do not work well when receiving an AVI InfoFrame.

[VIC]: Select the VIC code to use in the Custom AVI Hex field.

[Primaries]: Select the Primaries value to use in Custom AVI Hex field

[Range]: Select the range value to use in the Custom AVI Hex field.

[Create IF]: Use the previous defined values to create the Custom AVI metadata.

[Send AVI]: Replaces the current incoming AVI with the custom defined one in the text box. This way customer can for example activate BT2020 mode in the TV even though content doesn't sent the correct InfoFrame. This string is also saved in Vertex² and is persistent over hotplugs and power cycles. The AVI mod is really meant for advanced users only because incorrect values can blank the screen and since the settings are saved even power up won't help until reset. Please note that upon clicking, **Use Custom AVI** will automatically send the current stored AVI metadata value, to stop the sending of the custom AVI infoframe, uncheck **Use Custom AVI**. If **Use Custom AVI** is activated then by pressing the **Send AVI** button, the infoframe injection does not stop, it just changes values, useful to avoid TV resync.

[CAPTURED INPUT DOLBY VISION METADATA]: Dolby ID and HEX data from the DV source.

[DOLBY VISION EDID DATABLOCK]: Vertex² will automatically sniff, display and save any Dolby Vision mandatory string from a connected sink at TX0 output. Once stored, this mandatory string can be used in Automix to ensure that the DV stream from the source is compatible with the sink. Once the DV string of a display is saved, you can insert other equipment like an AVR in between in the chain and still have the right DV signal passthru to the sink. Additionally, the datablock value is fully deciphered in human readable format.

[SPD INFOFRAME]: Display the captured Source Product InfoFrame.

[AUD INFOFRAME]: Display the captured Audio Format information, if PCM this usually gives the sample rate and number of speakers, if bitstream then usually this infoframe just inform the default which is "refer stream header".

[HVS INFOFRAME: HDMI VENDOR SPECIFIC]: Display HDMI Vendor Specific InfoFrame.

[VSI INFOFRAME: VENDOR SPECIFIC]: Display HDMI2.0 version of HDMI VSIF

[HFV INFOFRAME: HDMI FORUM VSIF]: If the source is sending Vendor Specific Infoframe then the information is captured, extracted and displayed in this text box on GUI.

[REFRESH]: Refresh the current page.

Vertex² Web Server OSD Section

OSD SETUP:

OSD ENABLE

FADE SECONDS:

OSD LOCATION [X]:

OSD LOCATION [Y]:

OSD COLOR [FRONT]:

OSD COLOR [BACK]:

OSD COLOR [LEVEL]:

OSD INFO FLAGS:

Source Name

Video Field:

Video IF:

HDR RX/TX Info:

HDR IF:

Audio Field:

Rx Video Info:

RX HDR info:

Ignore Metadata

Change:

OSD MASK SETUP:

OSD MASK ENABLE

OSD MASK [X]:

OSD MASK [Y]:

OSD MASK1 [X]:

OSD MASK1 [Y]:

OSD MASK LEVEL:

OSD GRAYSCALE:

OSD TEXT SETUP:

OSD TEXT ENABLE

NEVER FADE

OSD TEXT [X]:

OSD TEXT [Y]:

TEXT TO BE DISPLAYED:

OSD STATUS OK

[OSD SETUP]: Enable or Disable the OSD feature of Vertex².

[OSD FADE]: Set the timer in seconds before OSD fade out, 0 = never (always ON)

[OSD LOCATION X, Y]: Set the X and Y value of the OSD location at 1080p, values are multiplied by 2 when the stream is 4K.

[OSD COLOR FRONT, BACK, LEVEL]: Set the Text Color [FRONT 0-31], Background Color [BACK 0-31] and Background transparency [LEVEL 0-7] for the OSD.

[OSD INFO]: Select or unselect the information that must be displayed on your Vertex² OSD. Available options are: Source name, Video Field, Video IF, HDR info, HDR IF, Audio field, RX Video info, RX HDR info, Ignore Metadata Change.

[OSD MASK SETUP]: Enable or Disable the use of OSD Mask.

[MASK LOCATION x0,y0,x1,y1]: Defines the coordinates of the top left and bottom right corner of your OSD Mask at 1080p. Values are multiplied by 2 when the stream is 4K

[OSD MASK LEVEL]: Select the level of transparency for your OSD Mask. Value range is from 1 to 7.

[OSD GRAYSCALE]: Select the level of grayscale for your OSD Mask. Value range is from 0 to 15.

[SEND]: For any changes in the above parameters, click SEND to upload them to your Vertex² unit.

[OSD TEXT ENABLE]: Enable or disable the OSD Custom Text, once activated, the custom text defined in the text field will be displayed on screen.

[NEVER FADE]: If you want to keep the OSD Custom text even after OSD info faded away, make sure this option is enabled.

[OSD TEXT X,Y]: Set the X and Y value of the OSD Custom Text at 1080p, values are multiplied by 2 when the stream is 4K

[SEND]: For any changes in the above parameters, click SEND to upload them to your Vertex² unit.

[REFRESH]: Refresh the current page.

Vertex² Web Server CEC/RS232 Section

CEC / EARC / ARC SUPPORT:
 VERTEX2 supports EARC and ARC audio return from the connected display
 For EARC support, first configure TV to output EARC. VERTEX2 will automatically support EARC if TV sends it
 CEC must be enabled to support CEC channel switching and legacy ARC capability
 CEC is not required for EARC

All changes to CEC/ARC parameters on this page require a VERTEX2 power cycle. Unplug/replug power.

Enable CEC
 CEC TYPE:

ARC support requires "0x05 Audio Processor" -type, make sure no other AVR devices are connected to the TV

Enable DD+/ATMOS over ARC for optical output [AUDIO OUT will be silent]

ARC mode default switching for AUDIO OUT between TV ARC and input HDMI
 Some TV's won't release ARC line when watching input HDMI, these settings can override:

AUTO ARC HDMI

SEND CEC TEST COMMANDS:

RS232 COMMANDS:
 RS232 BAUD RATE:

CEC/RS232 STATUS OK

[ENABLE CEC] must be checked in order to apply the selected dropdown options to the Vertex² unit. Once activated it allows Vertex² to answer and process CEC requests and commands and appear on the TV CEC network map. Uncheck it if you do not want Vertex² to answer external CEC requests or process Internal CEC commands. Unchecking will remove Vertex² from the Root(TV) network map but CEC commands for connected sinks or sources will still pass-thru.

[CEC TYPE] Video Processor (Default) is the device type to choose if you have an AVR in your setup and if you want to use that AVR for ARC or CEC.

[CEC TYPE] Audio Processor is the device type to choose if you want Vertex² ARC feature to be ON (Sound from TV ARC to Vertex² HDMI audio out, 5.1 Optical Out or Jack Analog Stereo output.

[Enable DD+/ATMOS ARC]: If your AVR is capable of accepting more than Dolby Digital or DTS or if can take 192khz Audio via its optical input, you can use Vertex² to extract DD+ and Atmos from TV embedded streaming APPS and forward it to your AVR via the Vertex² HDMI audio out or optical output. Only a very few AVR on the market can support 192khz via optical in such case, use HDMI audio out to feed DD+/ATMOS to your AVR input.

[AUTO]: Default ARC sound extraction option, only use ARC or HDMI if AUTO does not perform well with your TV.

[ARC]: Force Audio OUT to output sound from TX0 ARC

[HDMI]: Force Audio OUT to output sound from any sources at input.

[SEND CEC TEST COMMAND]: Enter the CEC command of your choice in this text field in HEX format. If you are not sure about how to format your command, we recommend you to visit the very well done [cec-o-matic](#) website made by [Kwikwai](#).

[RS232 COMMAND]: Allow you to test RS232 command to make sure your unit is properly configured and ready to communicate via RS232.

[RS232 BAUD RATE]: Set the RS232 link speed (default 19200)

[Send Ascii]: Once RS232 command have been entered in Ascii format, use this button to send it out.

[Send Binary]: Once RS232 command have been entered in HEX/Binary, use this button to send it out.

[REFRESH]: Refresh the current page.

Note: CEC/ARC master is TX0, if you want ARC from the TV; you need to connect your TV ARC capable input to Vertex² HDMI TX0 OUTPUT and set the unit as Audio Processor under Vertex² CEC device type.

Note on eARC: eARC does not rely on CEC, therefor it is not needed to select any CEC options in order to extract up to Dolby Atmos HBR over TrueHD from capable eARC TV. That is always done automatically and forwarded to HDMI audio out of the Vertex² so you can feed any AVR input with it.

Vertex² Web Server MACROS Section

INFO	EDID	SCALER	HDR/DV	OSD	CEC-RS232	MACROS	CONFIG
------	------	--------	--------	-----	-----------	--------	--------

MACRO CONTROL:

ENABLE

SEND ON EVERY SYNC

HDR10 MODE: Automatic (default) ▼

SYNC DELAY (secs): 20

CONTENT/CALIBRATION	PICTURE MODE	OSD NAME	CUSTOM HEX
SDR-BT709 (HDTV)	DO NOTHING ▼	SDR-TV	21:89:1:50:4d:50:4d:30:31
SDR-BT709 (Film)	DO NOTHING ▼	SDR-Film	21:89:1:50:4d:50:4d:30:32
SDR-BT2020	DO NOTHING ▼	SDR-BT2020	21:89:1:50:4d:50:4d:30:33
3D	DO NOTHING ▼	3D	21:89:1:50:4d:50:4d:30:34
x.v.Color	DO NOTHING ▼	x.v.Color	21:89:1:50:4d:50:4d:30:35
HLG-BT709	DO NOTHING ▼	HLG-BT709	21:89:1:50:4d:50:4d:30:36
HLG-BT2020	DO NOTHING ▼	HLG-BT2020	21:89:1:50:4d:50:4d:30:37
HDR10	DO NOTHING ▼	HDR10-DC4K	21:89:1:50:4d:50:4d:30:38
HDR10-Opt	DO NOTHING ▼	HDR10-DC1K	21:89:1:50:4d:50:4d:30:39
HDR10-Rec709	DO NOTHING ▼	HDR10-BT709	21:89:1:50:4d:50:4d:30:3a

CUSTOM HDR10 PROFILES:

<input checked="" type="checkbox"/> IF HDR10	Max Brightness ▼	BELOW OR EQUALS TO	0	THEN	DO NOTHING ▼
<input checked="" type="checkbox"/> IF HDR10	Max Brightness ▼	BELOW OR EQUALS TO	1100	THEN	DO NOTHING ▼
<input checked="" type="checkbox"/> IF HDR10	MaxCLL ▼	BELOW OR EQUALS TO	0	THEN	DO NOTHING ▼
<input checked="" type="checkbox"/> IF HDR10	MaxCLL ▼	BELOW OR EQUALS TO	1100	THEN	DO NOTHING ▼
<input checked="" type="checkbox"/> IF HDR10	MaxCLL ▼	BELOW OR EQUALS TO	4000	THEN	DO NOTHING ▼
<input checked="" type="checkbox"/> IF HDR10	MaxCLL ▼	BELOW OR EQUALS TO	4000	THEN	DO NOTHING ▼
<input checked="" type="checkbox"/> ELSE				THEN	DO NOTHING ▼

Send Macro Values

Commands are forwarded to the local RS232 output and MAESTRO RX RS232

MACROS STATUS OK
Refresh

With the help of power users from the community, special automatic and custom macro has been developed for JVC Projectors. Kindly please refer to instructions posted [here](#). Vertex² now allow to edit each command individually so you can instruct any RS232 capable display.

Disclaimer: 3rd party and/or custom firmware providing extra features are not covered in this manual.

Vertex² Web Server CONFIG Section

VERTEX2 SETUP:

AUTOSWITCH INPUTS: ON OFF
AUTOSWITCH PRIORITY: ON OFF

HDCP VERSION: 1.4 Auto
HTPC MODE RX0: ON OFF
HTPC MODE RX1: ON OFF
HTPC MODE RX2: ON OFF
HTPC MODE RX3: ON OFF

OLED DISPLAY: ON OFF
ROTATE 180 DEG: ON OFF
REVERSE COLORS: ON OFF
OLED FADE:

OLED PAGE:

MUTE TX0 AUDIO: ON OFF
MUTE TX1 AUDIO: ON OFF
IR: ON OFF

ANALOG L/R AUDIO CONTROL:

VOLUME [-100 to +10dB]
BASS [-10 to +10dB]
TREBLE [-10 to +10dB]

TEST PATTERN GENERATOR:

ENABLE: PATTERN: HDCP:

IP CONFIG:
Reboot required for any changes in DHCP / STATIC IP

DHCP: ON OFF
mDNS: ON OFF

Current IP Configuration:

IP ADDR:
IP MASK:
IP GW:
MAC:

Configure Static IP:
This address is used when DHCP is off

IP ADDR:
IP MASK:
IP GW:

Configure TCP port: [requires reboot to apply]
VERTEX2 will listen to this port for IP / Telnet commands
IP PORT:

VERTEX2 CONTROL:

REBOOT UNIT

EXPORT CONFIG

ISSUE HOTPLUG

RESET TO FACTORY DEFAULTS:
 CLEAR ALL SETTINGS TO FACTORY DEFAULTS:
 EDID FACTORY SETTINGS:

FW UPDATE: VERTEX2-0.22-935-061319.bin

CONFIG STATUS OK

Disclaimer: 3rd party and/or custom firmware providing extra features are not covered in this manual.

[AUTOSWITCH INPUTS]: When activated, the new TMDS / Pixel clock Auto switch feature will force the Vertex² unit to automatically switch to the active signal if the selected signal is lost. It can also auto switch source that keep sending +5V when in standby such as ATV4K, X1X, Shield and others.

[AUTOSWITCH PRIORITY]: When input priority mode is enabled, as soon as a new active input is detected, Vertex² will switch to it.

[HDCP VERSION]: Allow you to select/force the HDCP revision of the TX1 Output Port.

[HTPC MODE]: Useful if you have trouble with windows display and icons when resuming from stand-by mode. Please note that with default firmware HTPC mode is not compatible with HDCP signal. You can set HTPC mode for each input individually.

[OLED DISPLAY]: Enabled by default, Vertex² OLED display can be turned ON/OFF at will. Some users might found the Vertex² OLED display visually disturbing in their HT setup. You have the possibility to turn it off.

[ROTATE 180 DEG]: OFF by default, based on your setup, you might prefer to flip the OLED display, once activated, this option will flip the Vertex² OLED.

[REVERSE COLORS]: OFF by default, once activated this option will reverse the Vertex² OLED colors.

[OLED FADE]: Allow you to define a custom timing in seconds before OLED FADE, set it to 0 for OLED to always stay active. Default is 30sec.

[OLED PAGE]: Select the OLED page that will be displayed at startup .

[MUTE TX0 AUDIO]: If you use an AVR at HDMI audio out, you might want to disable sound going to equipment connected at TX0 output. Here you can mute the TX0 output sound.

[MUTE TX1 AUDIO]: If you use an AVR at HDMI audio out, you might want to disable sound going to equipment connected at TX1 output. Here you can mute the TX1 output sound.

[IR]: You can globally turn ON or OFF IR support for Vertex²

[ANALOG L/R AUDIO CONTROL]: This option will adjust the Analog Stereo output from this section. Volume, Bass and Treble control are available.

[SEND]: After Volume, Bass or Treble values changes, click send to apply your changes.

[TEST PATTERN GENERATOR FOR TX0]: Once configured with dropdown field and enabled, this option will display a test pattern at TX0 output. It can be useful for testing equipment. 480p60, 720p60; 1080p60, 4k24 or 4K60 resolution are available, Pattern can be color bars, ramp1 or ramp2 and HDCP can be set to none, 1.4 or 2.2

[IP CONFIG]: This section allows you to edit the way Vertex² will retrieve its IP address. Any changes will only be applied after reboot (power cycle)

[DHCP]: When set to ON, Vertex² will retrieve a dynamic IP automatically.

[mDNS]: Set ON/OFF mDNS support for you router/network capabilities and security settings.

[CURRENT IP CONFIGURATION]: Display the current value of IP address, IP mask and IP gateway and MAC address.

[CONFIGURE STATIC IP]: Enter the IP address, IP mask and IP gateway of your choice for a static IP setup, DHCP needs to be OFF for using static IP values

[SET IP]: After any changes in IP configuration, click SET IP to validate.

[IP PORT]: Set the IP/telnet port of your choice here (default value is 2220).

[SET PORT]: Click here to apply the IP/telnet port of your choice (Reboot or Power cycle required)

[REBOOT UNIT]: Click REBOOT button to restart Vertex² completely.

[EXPORT CONFIG]: Allow you to export a text file that includes the full list of Vertex² settings and some setup information that can be useful for support.

[ISSUE HOTPLUG]: Click Send button to perform a soft-reset in your setup.

[CLEAR ALL SETTINGS TO FACTORY DEFAULTS]: Type **RESET** in the factory def text field and click the available RESET button to clear all settings to factory defaults. Vertex² power cycle needed.

[EDID FACTORY SETTINGS]: Click the available check box to clear all EDID settings to factory defaults and type **RESET** in the test field. Finally click the **RESET** button and unit EDID will be reset to factory defaults.

[FW UPDATE]: Select the Vertex² firmware file and click SEND to upload it. Wait for Vertex² to reboot automatically, once Vertex² is rebooted, refresh the webserver page.

[REFRESH]: Refresh the current page.

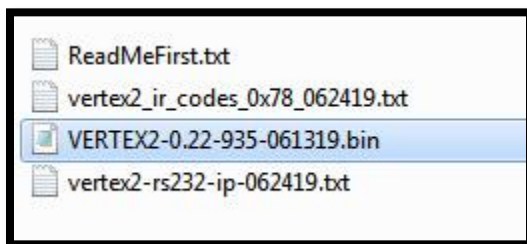
Updating your Vertex² Firmware via web browser

The Vertex² Firmware can be updated from any web browser based device.

If you meet any issue updating your Vertex² firmware, please try using Chrome Browser on your device.

You can download the latest Firmware version for your Vertex² device from the Download Tab on the Vertex² Product page: [here](#). If you are unsure about your Firmware version currently in use, simply refer to OLED display on your unit. Alternatively, FW version is reported on any header of any page when accessing the embedded web server.

Once downloaded and extracted, you should have a directory on your computer with the following files

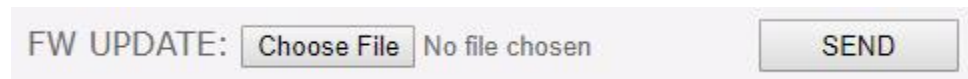


You will have to run Vertex² Update to successfully upgrade your Vertex².

Note: Version number could be different depending on the FW revision you downloaded.

After updating the Vertex² firmware, you will be prompted to refresh the webpage once unit have rebooted, you won't see any light or OLED info for about 15s as the unit is restarting and reconfiguring itself. Once ready, OLED and light will come back on.

Visit Vertex² webserver and browse to the bottom on the CONFIG section.



Click **Choose File** as shown on the above picture and select Vertex² firmware file.



Once correct Firmware file is selected, its name will appear on the config page. Simply click SEND button to start flashing the firmware to your unit.



During this process you will see the above message on the footer page of the config section. Please wait a few seconds and do not disconnect your device while the upgrade process is running.

Disclaimer: 3rd party and/or custom firmware providing extra features are not covered in this manual.

FW UPLOAD OK - WAIT FOR REBOOT AND THEN REFRESH BROWSER

Refresh

Once completed, you will see the above notification.

Simply wait for Vertex² OLED to come back on and click **REFRESH**.

The top section of the web server and Vertex² OLED should now indicate the new firmware version.

Congratulations, you have successfully updated your Vertex² firmware update and your unit is now ready to operate with the benefits from the latest software additions.

Public API/DLL: We have created a set of DLL/API package for Vertex² so anyone can interface their software with Vertex² capabilities and build evaluation, testing, measurement, calibration and content creation workflows system.

IR/RS232: Vertex² can be fully controlled via IR or from any serial based computer such as Win, Max or Linux using RS232 interface. Complete list of IR and RS232 commands are included as a text file for convenience on all Firmware update package.

CONFIG Export section of web server

By using the **[CONFIG] > [EXPORT CONFIG]** option, you will be able to save the current Vertex² configuration and settings in a text file.

The file can then be shared with the community or for support reason.

Exported config file will present the active signal information, the EDID set for each RX and TX as well as the list of parameters.

```
{
  "product": "VERTEX2",
  "time": "28/06/2019 Ã 19:14:13",
  "hostname": "VERTEX2-07",
  "ipaddress": "192.168.1.150",
  "version": "FW: 0.33",
  "portseltx0": "0",
  "portseltx1": "4",
  "RX0": " 1080P50 RGB L 8b 148MHz 1.4",
  "RX1": " 1080P50 RGB L 8b 148MHz 1.4",
  "TX0": "",
  "TX1": " 1080P50 RGB L 8b 148MHz 1.4",
  "AUD0": "",
  "AUD1": " L-PCM 48kHz --ch 16bit",
  "SINK0": "Panasonic-TV EDID: 1080P60 12b  ",
  "SINK1": "Panasonic-TV EDID: 1080P60 12b  ",
  "SPD":
"83:01:19:b1:42:72:6f:61:64:63:6f:6d:53:54:42:20:52:65:66:73:77:20:44:65:73:6
9:67:6e:01:00:00",
  "SPD1": "",
  "edidmode": "custom",
  "edidalgo": "Max Audio, Max Video",
  "edidtableinp1": "11",
  "edidtableinp2": "0",
  "edidtableinp3": "0",
  "edidtableinp4": "0",
  "edidbt2020": "1",
  "edidyuvremove": "0",
  "edidhdr10": "1",
  "edidhlg": "0",
  "edidaudioflags": "5.1",
  "ediddv": "0",
  "ediddvremove": "0",
  "ediddvlimit": "0",
  "edid3dremove": "0",
  "scalemode": "auto",
  "tx0autonoupscale": "off",
  "tx0scale4k60": "on",
  "tx0scale4k60cs": "follow",
  "tx0scale4k60dc": "follow",
  "tx0scale4k30": "on",
  "tx0scale4k30cs": "follow",
  "tx0scale4k30dc": "follow",
  "tx0scale1080p60": "on",
  "tx0scale1080p60upscale": "on",
}
```



```

"tx0scale1080p60cs": "follow",
"tx0scale1080p60dc": "8-bit",
"tx0scale1080p30": "on",
"tx0scale1080p30upscale": "on",
"tx0scale1080p30cs": "follow",
"tx0scale1080p30dc": "8-bit",
"tx1scale4k60": "on",
"tx1scale4k60downscale": "on",
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"tx1scale4k60dc": "follow",
"tx1scale4k30": "on",
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"tx1scale4k30dc": "follow",
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"tx1scale1080p60cs": "follow",
"tx1scale1080p60dc": "follow",
"tx1scale1080p30": "on",
"tx1scale1080p30cs": "follow",
"tx1scale1080p30dc": "follow",
"SPD": "",
"SPD1": "",
"AVI": "",
"AUD": "",
"HDR": "",
"HDRCUSTOM":
"87:01:1a:b0:02:00:c2:33:c4:86:4c:1d:b8:0b:d0:84:80:3e:13:3d:42:40:a0:0f:32:0
0:e8:03:90:01:00",
"AVICUSTOM": "82:02:0d:ae:40:c0:60:61:00:00:00:00:00:00:00:00:00:00",
"HVS": "",
"VSI": "",
"HFV": "",
"DVO": "",
"customhdr": "0",
"customavi": "0",
"disablehdr": "0",
"disableavi": "0",
"hdrcustomhdronly": "0",
"hdrcustomhlgonly": "0",
"hdr10disable": "0",
"hlgdisable": "0",
"hdrcustomhlgonlyauto": "0",
"osdenable": 1,
"osdfadesecs": 15,
"osdx": 20,
"osdy": 945,
"osdcolorfg": 21,
"osdcolorbg": 0,
"osdlevel": 7,
"osdMaskenable": 0,
"osdmaskx": 0,
"osdmasky": 950,
"osdmaskx1": 1920,
"osdmasky1": 1080,
"osdmasklevel": 3,
"osdmaskgray": 10,
"osdtextenable": 0,

```

```
"osdtextneverfade": 0,  
"osdtextx": 20,  
"osdtexty": 20,  
"osdfieldsource": 1,  
"osdfieldvideo": 1,  
"osdfieldvideoif": 1,  
"osdfieldhdr": 1,  
"osdfieldhdrif": 1,  
"osdfieldaudio": 1,  
"osdfieldrxhdrforce": 0,  
"osdfieldrxvideoforce": 0,  
"osdfieldignoremetadata": 0,  
"osdtextstr": "VERTEX2 by HDFURY 2019",  
"cecrequested": "enabled",  
"cecla": "video",  
"archbr": "0",  
"arcforce": "auto",  
"earcst": "off",  
"arcst": "off",  
"baudrate": "19200",  
"macroenable": 0,  
"macroeverysync": 0,  
"macrohdr10mode": 0,  
"macrocustomen1": 1,  
"macrocustomen2": 1,  
"macrocustomen3": 1,  
"macrocustomen4": 1,  
"macrocustomen5": 1,  
"macrocustomen6": 1,  
"macrocustomen7": 1,  
"macrocustom1mode": 0,  
"macrocustom1value": 0,  
"macrocustom1action": 0,  
"macrocustom2mode": 0,  
"macrocustom2value": 1100,  
"macrocustom2action": 0,  
"macrocustom3mode": 2,  
"macrocustom3value": 0,  
"macrocustom3action": 0,  
"macrocustom4mode": 2,  
"macrocustom4value": 1100,  
"macrocustom4action": 0,  
"macrocustom5mode": 2,  
"macrocustom5value": 4000,  
"macrocustom5action": 0,  
"macrocustom6mode": 2,  
"macrocustom6value": 4000,  
"macrocustom6action": 0,  
"macrocustom7action": 0,  
"macrodrhdtv": 0,  
"macrodrfilm": 0,  
"macrodrbt2020": 0,  
"macro3d": 0,  
"macroxvcolor": 0,  
"macrohlgbt709": 0,  
"macrohlgbt2020": 0,  
"macrohdr10": 0,
```

```

"macrohdr10opt": 0,
"macrohdr10bt709": 0,
"enclevel": "0",
"autosw": "0",
"autoswprio": "1",
"iractive": "1",
"htpcmode0": "0",
"htpcmode1": "0",
"htpcmode2": "0",
"htpcmode3": "0",
"macrorep": "0",
"mutetx0": "0",
"mutetx1": "0",
"analogvolume": "0",
"analogbass": "0",
"analogtreb": "0",
"staticip": "staticip 192.168.1.250/255.255.255.0/192.168.1.1",
"activeip": "activeip 192.168.1.159/255.255.255.0/192.168.1.1",
"dhcp": "1",
"tcpport": "2220",
"macaddr": "18:9B:A5:D2:00:01",
"mdns": "1",
"oled": "1",
"oledpage": "0",
"oledrot": "1",
"oledrev": "0",
"oledfade": "30",

"EDIDRX0": "00 ff ff ff ff ff ff 00 25 d4 01 00 01 00 00 00 0a 1c 01 03
80 00 00 78 0a ee 95 a3 54 4c 99 26 0f 50 54 a1 08 00 31 40 45 40 61 40 71 40
81 80 01 00 01 00 01 01 08 e8 00 30 f2 70 5a 80 b0 58 8a 00 50 1d 74 00 00 1e
02 3a 80 18 71 38 2d 40 58 2c 45 00 50 1d 74 00 00 1e 00 00 00 fd 00 0f 90 1e
88 3c 00 00 00 00 00 00 00 00 00 00 00 fc 00 56 45 52 54 45 58 0a 20 20 20 20
20 20 01 ef 02 03 5b 71 57 61 10 1f 60 13 05 14 20 21 22 5d 5e 5f 04 65 66 62
63 64 07 16 03 12 35 0f 7f 07 15 07 50 3d 1e c0 4d 02 00 57 06 01 5f 7e 01 67
7e 01 83 5f 00 00 e2 00 cf e2 0f 09 e3 06 0f 01 e3 05 e3 01 6e 03 0c 00 41 00
b8 3c 20 80 80 01 02 03 04 67 d8 5d c4 01 78 80 03 01 1d 80 18 71 1c 16 20 58
2c 25 00 40 84 63 00 00 9e 66 21 56 aa 51 00 1e 30 46 8f 33 00 50 1d 74 00 00
1e b5",

"EDIDRX1": "00 ff ff ff ff ff ff 00 25 d4 01 00 01 00 00 00 0a 1c 01 03
80 00 00 78 0a ee 95 a3 54 4c 99 26 0f 50 54 a1 08 00 31 40 45 40 61 40 71 40
81 80 01 00 01 00 01 01 08 e8 00 30 f2 70 5a 80 b0 58 8a 00 50 1d 74 00 00 1e
02 3a 80 18 71 38 2d 40 58 2c 45 00 50 1d 74 00 00 1e 00 00 00 fd 00 0f 90 1e
88 3c 00 00 00 00 00 00 00 00 00 00 00 fc 00 56 45 52 54 45 58 0a 20 20 20 20
20 20 01 ef 02 03 5b 71 57 61 10 1f 60 13 05 14 20 21 22 5d 5e 5f 04 65 66 62
63 64 07 16 03 12 35 0f 7f 07 15 07 50 3d 1e c0 4d 02 00 57 06 01 5f 7e 01 67
7e 01 83 5f 00 00 e2 00 cf e2 0f 09 e3 06 0f 01 e3 05 e3 01 6e 03 0c 00 42 00
b8 3c 20 80 80 01 02 03 04 67 d8 5d c4 01 78 80 03 01 1d 80 18 71 1c 16 20 58
2c 25 00 40 84 63 00 00 9e 66 21 56 aa 51 00 1e 30 46 8f 33 00 50 1d 74 00 00
1e b4",

"EDIDRX2": "00 ff ff ff ff ff ff 00 25 d4 01 00 01 00 00 00 0a 1c 01 03
80 00 00 78 0a ee 95 a3 54 4c 99 26 0f 50 54 a1 08 00 31 40 45 40 61 40 71 40
81 80 01 00 01 00 01 01 08 e8 00 30 f2 70 5a 80 b0 58 8a 00 50 1d 74 00 00 1e
02 3a 80 18 71 38 2d 40 58 2c 45 00 50 1d 74 00 00 1e 00 00 00 fd 00 0f 90 1e
88 3c 00 00 00 00 00 00 00 00 00 00 00 fc 00 56 45 52 54 45 58 0a 20 20 20 20
20 20 01 ef 02 03 5b 71 57 61 10 1f 60 13 05 14 20 21 22 5d 5e 5f 04 65 66 62
63 64 07 16 03 12 35 0f 7f 07 15 07 50 3d 1e c0 4d 02 00 57 06 01 5f 7e 01 67

```

```

7e 01 83 5f 00 00 e2 00 cf e2 0f 09 e3 06 0f 01 e3 05 e3 01 6e 03 0c 00 43 00
b8 3c 20 80 80 01 02 03 04 67 d8 5d c4 01 78 80 03 01 1d 80 18 71 1c 16 20 58
2c 25 00 40 84 63 00 00 9e 66 21 56 aa 51 00 1e 30 46 8f 33 00 50 1d 74 00 00
1e b3",
    "EDIDRX3": "00 ff ff ff ff ff ff 00 25 d4 01 00 01 00 00 00 0a 1c 01 03
80 00 00 78 0a ee 95 a3 54 4c 99 26 0f 50 54 a1 08 00 31 40 45 40 61 40 71 40
81 80 01 00 01 00 01 01 08 e8 00 30 f2 70 5a 80 b0 58 8a 00 50 1d 74 00 00 1e
02 3a 80 18 71 38 2d 40 58 2c 45 00 50 1d 74 00 00 1e 00 00 00 fd 00 0f 90 1e
88 3c 00 00 00 00 00 00 00 00 00 00 00 00 00 fc 00 56 45 52 54 45 58 0a 20 20 20
20 20 01 ef 02 03 5b 71 57 61 10 1f 60 13 05 14 20 21 22 5d 5e 5f 04 65 66 62
63 64 07 16 03 12 35 0f 7f 07 15 07 50 3d 1e c0 4d 02 00 57 06 01 5f 7e 01 67
7e 01 83 5f 00 00 e2 00 cf e2 0f 09 e3 06 0f 01 e3 05 e3 01 6e 03 0c 00 44 00
b8 3c 20 80 80 01 02 03 04 67 d8 5d c4 01 78 80 03 01 1d 80 18 71 1c 16 20 58
2c 25 00 40 84 63 00 00 9e 66 21 56 aa 51 00 1e 30 46 8f 33 00 50 1d 74 00 00
1e b2",
    "EDIDTX0": "00 ff ff ff ff ff ff 00 34 a9 96 a2 01 01 01 01 00 16 01 03
80 00 00 78 0a da ff a3 58 4a a2 29 17 49 4b 00 00 00 01 01 01 01 01 01 01 01
01 01 01 01 01 01 01 01 02 3a 80 d0 72 38 2d 40 10 2c 45 80 ba 88 21 00 00 1e
02 3a 80 18 71 38 2d 40 58 2c 45 00 ba 88 21 00 00 1e 00 00 00 fc 00 50 61 6e
61 73 6f 6e 69 63 2d 54 56 0a 00 00 00 fd 00 17 3d 0f 44 0f 00 0a 20 20 20 20
20 20 01 dd 02 03 36 72 50 9f 90 14 05 20 13 04 12 03 11 02 16 07 15 06 01 23
09 07 01 78 03 0c 00 40 00 b8 26 2f c0 0a 81 49 ff fc 06 16 08 00 18 00 00 00
00 00 e3 05 1f 01 01 1d 80 d0 72 1c 16 20 10 2c 25 80 ba 88 21 00 00 9e 01 1d
80 18 71 1c 16 20 58 2c 25 00 ba 88 21 00 00 9e 01 1d 00 bc 52 d0 1e 20 b8 28
55 40 ba 88 21 00 00 1e 01 1d 00 72 51 d0 1e 20 6e 28 55 00 ba 88 21 00 00 1e
00 86",
    "EDIDTX1": "00 ff ff ff ff ff ff 00 34 a9 96 a2 01 01 01 01 00 16 01 03
80 00 00 78 0a da ff a3 58 4a a2 29 17 49 4b 00 00 00 01 01 01 01 01 01 01 01
01 01 01 01 01 01 01 01 02 3a 80 d0 72 38 2d 40 10 2c 45 80 ba 88 21 00 00 1e
02 3a 80 18 71 38 2d 40 58 2c 45 00 ba 88 21 00 00 1e 00 00 00 fc 00 50 61 6e
61 73 6f 6e 69 63 2d 54 56 0a 00 00 00 fd 00 17 3d 0f 44 0f 00 0a 20 20 20 20
20 20 01 dd 02 03 36 72 50 9f 90 14 05 20 13 04 12 03 11 02 16 07 15 06 01 23
09 07 01 78 03 0c 00 10 00 b8 26 2f c0 0a 81 49 ff fc 06 16 08 00 18 00 00 00
00 00 e3 05 1f 01 01 1d 80 d0 72 1c 16 20 10 2c 25 80 ba 88 21 00 00 9e 01 1d
80 18 71 1c 16 20 58 2c 25 00 ba 88 21 00 00 9e 01 1d 00 bc 52 d0 1e 20 b8 28
55 40 ba 88 21 00 00 1e 01 1d 00 72 51 d0 1e 20 6e 28 55 00 ba 88 21 00 00 1e
00 b6"
}

```

RS232 and IP/Telnet Command List

VERTEX² RS232 AND IP/TELNET COMMAND LIST:

Vertex² RS232 jack expects the following plug signals:

TIP = TX [sends data out from Vertex²]

RING = RX [receives data to Vertex²]

SLEEVE = GND

Parameters: 19200, n, 1, no handshake

If using RS232, each command must start with #Vertex² header and must end with a carriage return \r or a newline \n

If using IP/TELNET each command must end with a carriage return \r or a newline \n but there is no need for the #Vertex² header.

Each response will have both carriage return \r and a newline \n added in the format <cr><lf>

Vertex² default IP port is 2210. e.g. 192.168.1.100:2210

Use only lowercase characters

A generic RS232 command to write a value:

#Vertex2 set x y

where #Vertex2 is the header and all commands start with this header

set - indicates value will be written to Vertex²

x - target to be written

y - value or values

A generic RS232 command to read a value:

#Vertex2 get x

where #Vertex2 is the header and all commands start with this header

get - indicates value will be read from Vertex²

x - target to be read

A generic IP command is as above without the #Vertex² header

Full VERTEX² command list:

#vertex2 set insel tx0 tx1

where tx0 and tx1 is [0-3] input port, or [4] for follow

Ex. #vertex2 set insel 2 3

Set tx0 to input 2 and tx1 to input 3

#vertex2 set inseltx0 x

where x is [0-3] input port, or [4] for follow

Ex. #vertex2 set inseltx0 1

Set tx0 to input 1 and keep tx1 as is

#vertex2 set inseltx1 x

where x is [0-3] input port, or [4] for follow

Ex. #vertex2 set inseltx1 1

Set tx0 to input 1 and keep tx0 as is

#vertex2 set ipaddr xxx.xxx.xxx.xxx

Sets the static IP address. Active when dhcp is turned off.

Ex. #vertex2 set ipaddr 192.168.1.222

#vertex2 set ipmask xxx.xxx.xxx.xxx

Sets the static IP network mask. Active when dhcp is turned off.

Ex. #vertex2 set ipmask 255.255.255.0

#vertex2 set ipgw xxx.xxx.xxx.xxx

Sets the static IP gateway address. Active when dhcp is turned off.

Ex. #vertex2 set ipgw 192.168.1.1

#vertex2 set dhcp x

Set the dynamic or static IP address selection. Dynamic = dhcp on

where x is [on / off]

Ex. #vertex2 set dhcp off

#vertex2 set tcpport x

Set the TCP port to be listened to for commands. Default is 2200

Requires a reboot to be applied.

Ex. #vertex2 set port 2201

#vertex2 set autosw x

where x is [on / off]

Enables or disables the autoswitch feature

Ex. #vertex2 set autosw off

#vertex2 set autoswprio x

where x is [on / off]

Enables or disables the autoswitch priority feature

Ex. #vertex2 set autoswprio off

#vertex2 set edidmode x

where x is [automix / custom / fixed / copytx0 / copytx1]

Ex. #vertex2 set edidmode automix

#vertex2 set edid audio x

where x is [stereo / 51 / full / native / tx1]

Sets the automix EDID audio flag

Ex. #vertex2 set edid audio native

#vertex2 set edid bt2020 x

where x is [on / off]

Sets the automix EDID bt2020 capability addition

Will not remove if existing on the sink - only adds if missing

Ex. #vertex2 set edid bt2020 on

#vertex2 set edid yuvremove x

where x is [on / off]

Sets the automix EDID YUV/YCbCr capability force

Controls if the source sees a YCbCr capable sink

Ex. #vertex2 set edid yuvremove on

#vertex2 set edid hdr10 x

where x is [on / off]

Sets the automix EDID hdr10 capability

Will not remove if existing on the sink - only adds if missing

Ex. #vertex2 set edid hdr10 on

#vertex2 set edid hlg x

where x is [on / off]

Sets the automix EDID hlg capability

Will not remove if existing on the sink - only adds if missing

Ex. #vertex2 set edid hlg on

#vertex2 set edid dv x

where x is [on / off]

Sets the automix EDID Dolby Vision capability

Will not remove if existing on the sink - only adds if missing

Ex. #vertex2 set edid dv on

#vertex2 set edid dvremove x

where x is [on / off]

Sets the automix EDID to remove DV capability

Ex. #vertex2 set edid dvremove on

#vertex2 set edid dvlimit x

where x is [on / off]

Sets the automix EDID Dolby Vision frequency capability to 300Mhz max

Ex. #vertex2 set edid dvlimit on

#vertex2 set edid 3dremove x

where x is [on / off]

Sets the automix EDID to remove 3D capability

Controls if the source sees a 3D capable sink

Ex. #vertex2 set edid 3dremove on

#vertex2 set hdcp x

where x is [14 / auto]

Sets the hdcp level

in auto mode, depending on sink capability uses hdcp 1.4 or 2.2

Ex. #vertex2 set hdcp auto

#vertex2 set scale x

where x is [auto / custom / none]

Sets the scaling style for tx0 (tx1 is always automatic)

In auto mode, optimizes according to the best sink capabilities

Ex. #vertex2 set scale auto

#vertex2 set autonoupscale x

where x is [on / off]

Sets the mode for upscaling in tx0 output. Applies in "scale auto" mode only.

In "scale auto" mode enables/disables upscaling of 1080p content automatically to 4k.

Ex. #vertex2 set autonoupscale off

#vertex2 set edidtableinp0 x**#vertex2 set edidtableinp1 x****#vertex2 set edidtableinp2 x****#vertex2 set edidtableinp3 x**

where x is [1 - 100] for edidtableinp0 and [0 - 100] for others

Sets the custom EDID for corresponding input port

For ports 1-3 table number 0 indicates copy port 0 table

Ex. #vertex2 set edidtableinp0 11

#vertex2 set edidalgo x

where x is [0 - 4]

Sets the automix algorithm

0 = Min video, min audio

1 = Min video, max audio

2 = Tx0 priority

3 = Tx1 priority

4 = Max video, max audio [default]

Ex. #vertex2 set edidalgo 4

#vertex2 set hdrcustom x

where x is [on / off]

Starts to output custom HDR metadata and ignores any input received HDR metadata.

Overrides all other hdrcustom options

Ex. #vertex2 set hdrcustom on

#vertex2 set hdrcustomhdr10only x

where x is [on / off]

Starts to output custom HDR metadata if and only if the input is HDR10.

This setting is used to replace the incoming HDR10 metadata.

Ex. #vertex2 set hdrcustomhdr10only on

#vertex2 set hdrcustomhlgonly x

where x is [on / off]

Starts to output custom HDR metadata if and only if the input is HLG.

This setting is used to replace the incoming HLG metadata.

Ex. #vertex2 set hdrcustomhlgonly on

#vertex2 set hdrcustomhlgonlyauto x

where x is [on / off]

Starts to output custom HDR metadata if and only if the input is HLG and the sink has no HLG support.

This setting is used to replace the incoming HLG metadata.

Useful when turning on/off HLG capable sink while non-HLG sink is also connected.

Ex. #vertex2 set hdrcustomhlgonlyauto on

#vertex2 set hdrdisable x

where x is [on / off]

Stops sending any HDR metadata content

Ex. #vertex2 set hdrdisable on

#vertex2 set hdrdisablehdr10only x

where x is [on / off]

Stops sending any HDR metadata content if the input is HDR10

Ex. #vertex2 set hdrdisablehdr10only on

#vertex2 set hdrdisablehlgonly x

where x is [on / off]

Stops sending any HDR metadata content if the input is HLG

Ex. #vertex2 set hdrdisablehlgonly on

#vertex2 set avicustom x

where x is [on / off]

Starts to output custom AVI infoframe and ignores any input received AVI metadata.

Ex. #vertex2 set avicustom on

#vertex2 set avidisable x

where x is [on / off]

Stops sending any AVI infoframe content

Ex. #vertex2 set avidisable on

#vertex2 set cec x

where x is [on / off]

Sets the CEC engine

Ex. #vertex2 set cec on

#vertex2 set cecla x

where x is [video / audio]

Sets the CEC engine logical address. For video [14] and for audio [5].

Ex. #vertex2 set cecla audio

#vertex2 set archbr x

where x is [on / off]

Sets the ARC capability to include DD+ / ATMOS over DD+ capability.

Ex. #vertex2 set archbr on

#vertex2 set oled x

where x is [on / off]

Sets the OLED display visibility

Ex. #vertex2 set oled on

#vertex2 set oledrev x

where x is [on / off]

Sets the OLED display reversed colors

Ex. #vertex2 set oledrev on

#vertex2 set oledrot x

where x is [on / off]

Sets the OLED display rotation

Ex. #vertex2 set oledrot on

#vertex2 set oledpage x

where x is [0-4]

Sets the OLED display page

Ex. #vertex2 set oledpage 0

#vertex2 set oledfade x

where x is [0-255]

Sets the OLED display fade timer in seconds. After this time OLED goes blank

0 = no fade

Ex. #vertex2 set oledfade 60

#vertex2 set osd x

where x is [on / off]

Enables / disables osd

Ex. #vertex2 set osd on

#vertex2 set osdloc x y

where x is [1 - 1920] and y is [1 - 1080]

Sets the OSD information location coordinates. For 4k the values are 4x

Ex. #vertex2 set osdloc 50 850

#vertex2 set osdfg x

where x is [1 - 31]

Sets the OSD foreground color

Ex. #vertex2 set osdfg 20

#vertex2 set osdbg x

where x is [1 - 31]

Sets the OSD background color

Ex. #vertex2 set osdbg 20

#vertex2 set osdlevel x

where x is [0 - 7]

Sets the OSD opacity level

Ex. #vertex2 set osdlevel 4

#vertex2 set osdfade x

where x is [0-255]

Sets the OSD fade timer in seconds. After this time OSD info disappears

0 = no fade

Ex. #vertex2 set osdfade 20

#vertex2 set osdfield x y

where x is [source / video / videoif / hdr / hdrif / audio / rxhdrforce
rxvideoforce / ignoremetadata] and y is [on / off]

Sets the OSD field parameter visibility

Ex. #vertex2 set osdfield videoif off

#vertex2 set osdmaskloc x y x1 y1

where x and x1 are [1 - 1920] and y and y1 are [1 - 1080]

Sets the OSD mask information location coordinates. For 4k the values are 4x

Ex. #vertex2 set osdmaskloc 50 850 1900 900

#vertex2 set osdmask x

where x is [on / off]

Enables / disables osdmask

Ex. #vertex2 set osdmask on

#vertex2 set osdmasklevel x

where x is [0 - 7]

Sets the OSD opacity level

Ex. #vertex2 set osdmasklevel 4

#vertex2 set osdmaskgray x

where x is [0 - 15]

Sets the OSD gray level

Ex. #vertex2 set osdmaskgray 4

#vertex2 set osdtextloc x y

where x is [1 - 1920] and y is [1 - 1080]

Sets the OSD text location coordinates. For 4k the values are 4x

Ex. #vertex2 set osdtextloc 50 20

#vertex2 set osdtextneverfade x

where x is [on / off]

Osd text typically fades together with normal OSD.

This setting can disable fading.

Ex. #vertex2 set osdtextneverfade on

#vertex2 set osdtextstr x

where x max 64 characters

Defines the specific text string to be displayed. Must be in enclosed in quotation

Ex. #vertex2 set osdtextstr "HDFury 2019"

#vertex2 set osdtext x

where x is [on / off]

Enables / disables osdtext

Ex. #vertex2 set osdtext on

#vertex2 set mutetx0audio x

where x is [on / off]

Mute the tx0 hdmi audio output

Ex. #vertex2 set mutetx0audio on

#vertex2 set mutetx1audio x

where x is [on / off]

Mute the tx1 hdmi audio output

Ex. #vertex2 set mutetx1audio on

#vertex2 set analogvolume x

where x is [-30 to +10]

Sets the analog L/R audio jack output volume in dB.

Ex. #vertex2 set analogvolume -10

#vertex2 set analogbass x

where x is [-10 to +10]

Sets the analog L/R audio jack output bass level in dB.

Ex. #vertex2 set analogbass 5

#vertex2 set analogtreble x

where x is [-10 to +10]

Sets the analog L/R audio jack output treble level in dB.

Ex. #vertex2 set analogtreble -2

#vertex2 set reboot

Reboots the unit, does not clear any settings

#vertex2 set factoryreset x

where x is [1, 2, 3]

1 = Erase all settings but retain the custom EDID tables

2 = Erase custom EDID tables but retain other settings

3 = ERASE all settings and EDID tables

Ex. #vertex2 set factoryreset 3

#vertex2 set jvcmacro x

where x is [on / off]

Enables / disables JVC macro sending

Ex. #vertex2 set jvcmacro on

#vertex2 set jvcmacrosync x

where x is [on / off]

Enables / disables JVC macro sending on every sync instead of just at start once

Ex. #vertex2 set jvcmacrosync on

#vertex2 set jvcmacrodelay x

where x is [0 - 255]

Sets the delay between a mode change and sending the macro command via RS232

Ex. #vertex2 set jvcmacrodelay 25

#vertex2 set jvcmacrohdr10mode x

where x is [0 - 4]

0 = auto

1 = ignore metadata

2 = semiautomatic

3 = custom

Sets the current JVC macro mode

Ex. #vertex2 set jvcmacrohdr10mode 0

IR Code List

For convenience, the complete list of IR codes is supplied in Pronto HEX files, it is recommended to always use the latest IR codes list that is included as a text file format with each firmware update. Vertex² IR codes have also been submitted to Logitech Harmony and iRule.

vertex2_amutetx0off: NEC 0x78 0x4e

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015
0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 1d0b
```

vertex2_amutetx0on: NEC 0x78 0x4d

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015
003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 1d0b
```

vertex2_amutetx1off: NEC 0x78 0x66

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015
0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 003f 0015 1d0b
```

vertex2_amutetx1on: NEC 0x78 0x65

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015
003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 003f 0015 1d0b
```

vertex2_arcforcearc: NEC 0x78 0x0d

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
```


vertex2_autonoupscaleon: NEC 0x78 0x3f

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015
 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 1d0b

vertex2_autoswoff: NEC 0x78 0x13

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015
 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 1d0b

vertex2_autoswon: NEC 0x78 0x12

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015
 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 1d0b

vertex2_autoswpriooff: NEC 0x78 0x15

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015
 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 1d0b

vertex2_autoswprioon: NEC 0x78 0x14

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015
 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 1d0b

vertex2_avicustomoff: NEC 0x78 0x46

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015
0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 1d0b
```

vertex2_avicustomon: NEC 0x78 0x45

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 1d0b
```

vertex2_avidisableoff: NEC 0x78 0x48

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015
003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 1d0b
```

vertex2_avidisableon: NEC 0x78 0x47

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015
0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 1d0b
```

vertex2_ceclaaudioproc: NEC 0x78 0x3c

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015
003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 1d0b
```

vertex2_ceclavideoproc: NEC 0x78 0x3b

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015
0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 1d0b

vertex2_cecoeff: NEC 0x78 0x3a

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015
0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 1d0b

vertex2_cecon: NEC 0x78 0x39

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015
003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 1d0b

vertex2_edid3dremoveoff: NEC 0x78 0x34

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015
003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 1d0b

vertex2_edid3dremoveon: NEC 0x78 0x33

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015
0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 1d0b

vertex2_edidalgo0: NEC 0x78 0x60

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f

0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015
003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 003f 0015 1d0b

vertex2_edidalgo1: NEC 0x78 0x61

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015
003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 003f 0015 1d0b

vertex2_edidalgo2: NEC 0x78 0x62

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015
0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 1d0b

vertex2_edidalgo3: NEC 0x78 0x63

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015
0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 1d0b

vertex2_edidalgo4: NEC 0x78 0x64

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 1d0b

vertex2_edidaudio2ch: NEC 0x78 0x20

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015
003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 003f 0015 003f 0015 1d0b

vertex2_edidaudio51ch: NEC 0x78 0x21

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015
003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 1d0b
```

vertex2_edidaudio71ch: NEC 0x78 0x22

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015
0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 1d0b
```

vertex2_edidaudioout: NEC 0x78 0x8a

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015
0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 1d0b
```

vertex2_edidaudiotx0: NEC 0x78 0x23

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015
0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 1d0b
```

vertex2_edidaudiotx1: NEC 0x78 0x24

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 1d0b
```

vertex2_edidautomix: NEC 0x78 0x1a

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015
0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 1d0b
```

vertex2_edidbt2020off: NEC 0x78 0x26

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015
0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 1d0b
```

vertex2_edidbt2020on: NEC 0x78 0x25

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015
003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 1d0b
```

vertex2_edidcopytx0: NEC 0x78 0x1e

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015
0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 1d0b
```

vertex2_edidcopytx1: NEC 0x78 0x1d

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015
003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 1d0b
```

vertex2_edidcustom: NEC 0x78 0x1c

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015
 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 1d0b

vertex2_edidcustomtable1: NEC 0x78 0x91

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 003f 0015 0015 0015
 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable10: NEC 0x78 0x9a

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 003f 0015 003f 0015
 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable100: NEC 0x78 0xf4

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable11: NEC 0x78 0x9b

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 003f 0015 0015 0015
 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable12: NEC 0x78 0x9c

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f

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0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015
003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable13: NEC 0x78 0x9d

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 003f 0015 0015 0015
003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable14: NEC 0x78 0x9e

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 003f 0015 003f 0015
0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable15: NEC 0x78 0x9f

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 003f 0015 0015 0015
0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable16: NEC 0x78 0xa0

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015
003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable17: NEC 0x78 0xa1

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015
003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable18: NEC 0x78 0xa2

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015
0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable19: NEC 0x78 0xa3

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015
0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable2: NEC 0x78 0x92

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015
0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable20: NEC 0x78 0xa4

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable21: NEC 0x78 0xa5

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015
003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable22: NEC 0x78 0xa6

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015
0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 1d0b
```

vertex2_edidcustomtable23: NEC 0x78 0xa7

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015
0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 1d0b
```

vertex2_edidcustomtable24: NEC 0x78 0xa8

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015
003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 1d0b
```

vertex2_edidcustomtable25: NEC 0x78 0xa9

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015
003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 1d0b
```

vertex2_edidcustomtable26: NEC 0x78 0xaa

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015
0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 1d0b
```

vertex2_edidcustomtable27: NEC 0x78 0xab

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015
 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable28: NEC 0x78 0xac

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015
 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable29: NEC 0x78 0xad

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015
 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable3: NEC 0x78 0x93

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015
 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable30: NEC 0x78 0xae

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015
 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable31: NEC 0x78 0xaf

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f

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0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015
0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable32: NEC 0x78 0xb0

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015
003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable33: NEC 0x78 0xb1

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015
003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable34: NEC 0x78 0xb2

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015
0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable35: NEC 0x78 0xb3

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015
0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable36: NEC 0x78 0xb4

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable37: NEC 0x78 0xb5

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015
003f 0015 0015 0015 003f 0015 0015 0015 0015 003f 0015 0015 0015 1d0b
```

vertex2_edidcustomtable38: NEC 0x78 0xb6

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015
0015 0015 0015 0015 003f 0015 0015 0015 0015 003f 0015 0015 0015 1d0b
```

vertex2_edidcustomtable39: NEC 0x78 0xb7

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015
0015 0015 0015 0015 003f 0015 0015 0015 0015 003f 0015 0015 0015 1d0b
```

vertex2_edidcustomtable4: NEC 0x78 0x94

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 1d0b
```

vertex2_edidcustomtable40: NEC 0x78 0xb8

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015
003f 0015 003f 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 1d0b
```

vertex2_edidcustomtable41: NEC 0x78 0xb9

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015
003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 1d0b
```

vertex2_edidcustomtable42: NEC 0x78 0xba

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015
0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 1d0b
```

vertex2_edidcustomtable43: NEC 0x78 0xbb

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015
0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 1d0b
```

vertex2_edidcustomtable44: NEC 0x78 0xbc

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015
003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 1d0b
```

vertex2_edidcustomtable45: NEC 0x78 0xbd

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015
003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 1d0b
```

vertex2_edidcustomtable46: NEC 0x78 0xbe

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015
 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable47: NEC 0x78 0xbf

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015
 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable48: NEC 0x78 0xc0

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable49: NEC 0x78 0xc1

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015
 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable5: NEC 0x78 0x95

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015
 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable50: NEC 0x78 0xc2

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f

Disclaimer: 3rd party and/or custom firmware providing extra features are not covered in this manual.

0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable51: NEC 0x78 0xc3

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015
0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable52: NEC 0x78 0xc4

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable53: NEC 0x78 0xc5

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable54: NEC 0x78 0xc6

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable55: NEC 0x78 0xc7

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015
0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 1d0b

Disclaimer: 3rd party and/or custom firmware providing extra features are not covered in this manual.

vertex2_edidcustomtable56: NEC 0x78 0xc8

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable57: NEC 0x78 0xc9

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015
003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable58: NEC 0x78 0xca

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable59: NEC 0x78 0xcb

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015
0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable6: NEC 0x78 0x96

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015
0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable60: NEC 0x78 0xcc

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 1d0b
```

vertex2_edidcustomtable61: NEC 0x78 0xcd

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015
003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 1d0b
```

vertex2_edidcustomtable62: NEC 0x78 0xce

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 1d0b
```

vertex2_edidcustomtable63: NEC 0x78 0xcf

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015
0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 1d0b
```

vertex2_edidcustomtable64: NEC 0x78 0xd0

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 1d0b
```

vertex2_edidcustomtable65: NEC 0x78 0xd1

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015
 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable66: NEC 0x78 0xd2

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015
 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable67: NEC 0x78 0xd3

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015
 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable68: NEC 0x78 0xd4

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable69: NEC 0x78 0xd5

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015
 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable7: NEC 0x78 0x97

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f

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0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015
0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable70: NEC 0x78 0xd6

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015
0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable71: NEC 0x78 0xd7

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015
0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable72: NEC 0x78 0xd8

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable73: NEC 0x78 0xd9

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015
003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable74: NEC 0x78 0xda

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015
0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable75: NEC 0x78 0xdb

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015
0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 1d0b
```

vertex2_edidcustomtable76: NEC 0x78 0xdc

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 1d0b
```

vertex2_edidcustomtable77: NEC 0x78 0xdd

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015
003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 1d0b
```

vertex2_edidcustomtable78: NEC 0x78 0xde

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015
0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 1d0b
```

vertex2_edidcustomtable79: NEC 0x78 0xdf

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015
0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 1d0b
```

vertex2_edidcustomtable8: NEC 0x78 0x98

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015
003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 1d0b
```

vertex2_edidcustomtable80: NEC 0x78 0xe0

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015
003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 1d0b
```

vertex2_edidcustomtable81: NEC 0x78 0xe1

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015
003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 1d0b
```

vertex2_edidcustomtable82: NEC 0x78 0xe2

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015
0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 1d0b
```

vertex2_edidcustomtable83: NEC 0x78 0xe3

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015
0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 1d0b
```

vertex2_edidcustomtable84: NEC 0x78 0xe4

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable85: NEC 0x78 0xe5

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015
 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable86: NEC 0x78 0xe6

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015
 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable87: NEC 0x78 0xe7

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015
 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable88: NEC 0x78 0xe8

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015
 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable89: NEC 0x78 0xe9

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f

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0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015
003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable9: NEC 0x78 0x99

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015
003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 1d0b

vertex2_edidcustomtable90: NEC 0x78 0xea

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015
0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable91: NEC 0x78 0xeb

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015
0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable92: NEC 0x78 0xec

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable93: NEC 0x78 0xed

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015
003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable94: NEC 0x78 0xee

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015
0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable95: NEC 0x78 0xef

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015
0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable96: NEC 0x78 0xf0

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015
003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable97: NEC 0x78 0xf1

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015
003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable98: NEC 0x78 0xf2

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015
0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 1d0b

vertex2_edidcustomtable99: NEC 0x78 0xf3

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015
0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 1d0b
```

vertex2_ediddvlimitoff: NEC 0x78 0x32

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015
0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 1d0b
```

vertex2_ediddvlimiton: NEC 0x78 0x31

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015
003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 1d0b
```

vertex2_ediddvoff: NEC 0x78 0x2e

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015
0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 1d0b
```

vertex2_ediddvon: NEC 0x78 0x2d

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015
003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 1d0b
```

vertex2_ediddvremoveoff: NEC 0x78 0x30

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015
 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 1d0b

vertex2_ediddvremoveon: NEC 0x78 0x2f

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015
 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 1d0b

vertex2_edidfixed: NEC 0x78 0x1b

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015
 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 1d0b

vertex2_edidhdr10off: NEC 0x78 0x2a

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015
 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 1d0b

vertex2_edidhdr10on: NEC 0x78 0x29

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015
 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 1d0b

vertex2_edidhlgoff: NEC 0x78 0x2c

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f

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0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015
003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 1d0b

vertex2_edidhlgon: NEC 0x78 0x2b

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015
0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 1d0b

vertex2_edidrx1follow: NEC 0x78 0x8e

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015
0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 1d0b

vertex2_edidrx2follow: NEC 0x78 0x8f

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015
0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 1d0b

vertex2_edidrx3follow: NEC 0x78 0x90

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015
003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 1d0b

vertex2_edidyuvremoveoff: NEC 0x78 0x27

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015
0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 1d0b

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vertex2_edidyuvremoveon: NEC 0x78 0x28

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015
003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 1d0b
```

vertex2_hdcp14: NEC 0x78 0x36

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015
0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 1d0b
```

vertex2_hdcpauto: NEC 0x78 0x35

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015
003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 1d0b
```

vertex2_hdrcustomoff: NEC 0x78 0x42

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015
0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 1d0b
```

vertex2_hdrcustomon: NEC 0x78 0x41

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015
003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015
003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 1d0b
```

vertex2_hdrdisableoff: NEC 0x78 0x44

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 1d0b
```

vertex2_hdrdisableon: NEC 0x78 0x43

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015
0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 1d0b
```

vertex2_hotplug: NEC 0x78 0x16

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015
0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 1d0b
```

vertex2_inputsel0: NEC 0x78 0x00

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015
003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 1d0b
```

vertex2_inputsel0x: NEC 0x78 0x04

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 1d0b
```

vertex2_inputsel1: NEC 0x78 0x01

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015
 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 1d0b

vertex2_inputsel1x: NEC 0x78 0x05

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 1d0b

vertex2_inputsel2: NEC 0x78 0x02

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015
 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 1d0b

vertex2_inputsel2x: NEC 0x78 0x06

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015
 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 1d0b

vertex2_inputsel3: NEC 0x78 0x03

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015
 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 1d0b

vertex2_inputsel3x: NEC 0x78 0x07

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f

0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015
0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 1d0b

vertex2_inputse1x0: NEC 0x78 0x08

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015
003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 1d0b

vertex2_inputse1x1: NEC 0x78 0x09

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015
003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 1d0b

vertex2_inputse1x2: NEC 0x78 0x0a

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015
0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 1d0b

vertex2_inputse1x3: NEC 0x78 0x0b

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015
0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 1d0b

vertex2_jvcmacromode0: NEC 0x78 0x69

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015
003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 003f 0015 1d0b

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vertex2_jvcmacromode1: NEC 0x78 0x6a

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015
0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 1d0b
```

vertex2_jvcmacromode2: NEC 0x78 0x6b

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015
0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 1d0b
```

vertex2_jvcmacromode3: NEC 0x78 0x6c

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015
003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 1d0b
```

vertex2_jvcmacrooff: NEC 0x78 0x67

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015
0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 1d0b
```

vertex2_jvcmacroon: NEC 0x78 0x68

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015
003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 1d0b
```

vertex2_oledfade0: NEC 0x78 0x5b

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015
0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 1d0b
```

vertex2_oledfade30: NEC 0x78 0x5a

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015
0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 1d0b
```

vertex2_oledoff: NEC 0x78 0x50

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015
003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 1d0b
```

vertex2_oledon: NEC 0x78 0x4f

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015
0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 1d0b
```

vertex2_oledpage0: NEC 0x78 0x55

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015
003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 1d0b
```

vertex2_oledpage1: NEC 0x78 0x56

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015
 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 1d0b

vertex2_oledpage2: NEC 0x78 0x57

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015
 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 1d0b

vertex2_oledpage3: NEC 0x78 0x58

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015
 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 1d0b

vertex2_oledpage4: NEC 0x78 0x59

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015
 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 1d0b

vertex2_oledpage5: NEC 0x78 0x5c

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015
 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 1d0b

vertex2_oledrevoff: NEC 0x78 0x52

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f

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0015 0015 0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015
0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 1d0b

vertex2_oledrevon: NEC 0x78 0x51

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015
003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 1d0b

vertex2_oledrotateoff: NEC 0x78 0x54

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 003f 0015
003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 1d0b

vertex2_oledrotateon: NEC 0x78 0x53

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015
0015 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 003f 0015 1d0b

vertex2_osdaudiooff: NEC 0x78 0x7e

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015
0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 1d0b

vertex2_osdaudioon: NEC 0x78 0x7f

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015
0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 1d0b

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vertex2_osdcustomtextoff: NEC 0x78 0x88

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015
003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 1d0b
```

vertex2_osdcustomtexton: NEC 0x78 0x89

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015
003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 1d0b
```

vertex2_osdfade0: NEC 0x78 0x72

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015
0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 1d0b
```

vertex2_osdfade15: NEC 0x78 0x73

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015
0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 1d0b
```

vertex2_osdhdrdetailoff: NEC 0x78 0x7a

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015
0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 1d0b
```

vertex2_osdhdrdetailon: NEC 0x78 0x7b

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015
0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 1d0b
```

vertex2_osdhdrifoff: NEC 0x78 0x7c

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015
003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 1d0b
```

vertex2_osdhdrifon: NEC 0x78 0x7d

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015
003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 1d0b
```

vertex2_osdhdrxonlyoff: NEC 0x78 0x80

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015
003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 1d0b
```

vertex2_osdhdrxonlyon: NEC 0x78 0x81

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015
003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 1d0b
```

vertex2_osdignoremetadataoff: NEC 0x78 0x84

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 1d0b

vertex2_osdignoremetadataon: NEC 0x78 0x85

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 1d0b

vertex2_osdmaskoff: NEC 0x78 0x87

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 0015 0015
0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 1d0b

vertex2_osdmaskon: NEC 0x78 0x86

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015
0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 1d0b

vertex2_osdoff: NEC 0x78 0x70

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015
003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 003f 0015 1d0b

vertex2_osdon: NEC 0x78 0x71

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f

vertex2_osdvideofieldon: NEC 0x78 0x77

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015
0015 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 003f 0015 1d0b
```

vertex2_osdvideoifoff: NEC 0x78 0x78

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015
003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 1d0b
```

vertex2_osdvideoifon: NEC 0x78 0x79

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015
003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015 1d0b
```

vertex2_scaleauto: NEC 0x78 0x17

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 003f 0015 003f 0015 0015 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015
0015 0015 0015 0015 003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 1d0b
```

vertex2_scalecustom: NEC 0x78 0x18

```
0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 003f 0015
003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 003f 0015 1d0b
```

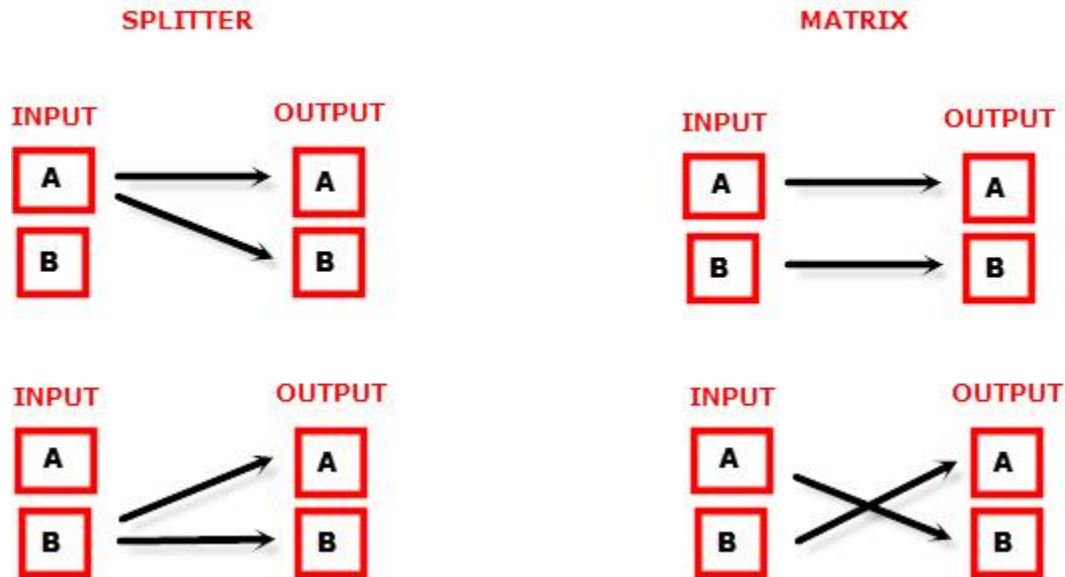
vertex2_scalenone: NEC 0x78 0x19

0000 006e 0000 0022 0156 00ab 0015 0015 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015
003f 0015 0015 0015 003f 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015 0015 003f
0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 0015 0015 0015 0015 0015 0015 0015
003f 0015 003f 0015 0015 0015 0015 0015 003f 0015 003f 0015 003f 0015 1d0b

FAQ

What is the difference between Splitter and Matrix option, what are the options for each mode?

The below picture represents the available options for both mode.



Can we pass-through 4K60 4:4:4 or any HDR signal and have one output at lower resolution ?

Yes, when connected correctly to the right downscale output port (TX1), Vertex² will automatically scale down UHD to FHD if required by the connected SINK (Display, AVR or others). Similarly it can scale up FHD to UHD if required by the connected SINK to the upscale port (TX0).

My display is supposed to accept 4K60 4:4:4 signals but it does not work?

For most UHD TV set we tried, there are always extra configuration options to active in order to achieve a 4K60 4:4:4 600MHz link. For ex, on samsung: in order to enable the 444 colorspace for 4k in Samsung TV's you must go to "settings" and "hdmi" and "UHD color" and enable it. Then also you must assign the HDMI port1 as "PC" in the tools menu. Only after these two steps will 600MHz be accepted. Similar activation tricks are required on most UHD TV's. Additionally, most UHD TV's only have specific ports that are 600MHz capable.

I have a PC mode on my TV (or a PC monitor) what resolutions are supported for graphics mode?

All PC graphics mode within the 600MHz bandwidth are supported, including ultra-high resolution such as WQXGA, QUXGA, QFHD, WQUXGA, 4K.

What output resolution does the Vertex² support in HDTV mode?

All known SD, HD, Full HD and UHD formats are supported including: 480i50, 480i60, 480p50, 480p60, 576p50, 576p60, 720p50, 720p60, 720p100, 720p120, 1080i25, 1080i30, 1080p24, 1080p25, 1080p30, 1080p48, 1080p50, 1080p60, 1080p72, 1080p75, 1080p96, 1440p50, 1440p60, 2160p24, 2160p25, 2160p30, 2160p50, 2160p60 (these are examples only, anything within the 600MHz bandwidth is supported.)

What version of HDMI does the Vertex² work with? Do I need HDMI 1.3/1.4a/2.0a/2.0b? Does it matter?

It does not matter. HDFury Vertex² works with any version of HDMI from 1.0 and up.

Do I need to set anything special in my HDMI source device to set the resolution correctly?

No. The HDFury Vertex² will be detected as 2160p60 4:4:4 capable device by your source and it will always accept and process the highest quality stream from your source devices. There is no need to set the HDMI source to any specific resolution.

Is there any latency (delay) introduced to the signal?

Virtually none. The latency added is in the order of a few pixel clocks only. Nothing noticeable at all.

What about long HDMI cable runs? Can I expect issues?

For 600MHz users must use "high speed" cables, or 600MHz/18Gbps certified, ideally the length should be between 6ft and 12ft for proper 600MHz/18Gbps pass-thru. For 4K30, 1080p or less almost all cables are ok. HDFury Vertex² acts as a HDMI repeater device. So having HDFury Vertex² in the path will amplify and recover the signal. You should not need any passive (or active) HDMI amplifiers, especially if you put the HDFury Vertex² in the middle of your cable run. If you previously had to use an amplifier, the HDFury Vertex² can most likely take its place. The HDFury Vertex² has been used with 50 foot (and longer) HDMI cables without issues including copper, active or fiber solutions.

How are the new lossless audio formats via HDMI input handled? E.g. DTS-HD/MA and DD/E-AC3: Are they stripped down to DTS core or Dolby Digital respectively to fit the requirements of the S/PDIF standard?

Lossless audio is transmitted through HDMI output only. HDFury Vertex² does not compress or otherwise downconvert the incoming audio. Only stereo and 5.1 sound can be output via SPDIF output. The analog output supports stereo only.

How do I hook up the audio from the Vertex² ?

The Vertex² has both analog and digital (TOSLINK) audio output in one connector labeled "SPDIF + L/R". It's a 2-in-1 connector meaning that you can plug in either a 3.5mm stereo analog jack or a digital mini-TOSLINK (3.5mm mini-jack) cable and get stereo analog sound or 5.1 Dolby/DTS digital sound out of the Vertex². See further below for pictures of both types of connectors/cables.

Vertex² 3.5mm mini-TOSLINK digital audio cable:



If you'd like to use a "regular" TOSLINK cable, use a 3.5mm Mini-TOSLINK to regular TOSLINK adapter:



A 3.5mm stereo audio cable can be used for connecting the Vertex² to a TV if you do not have a home theater setup (you only have 2 speakers in your TV):



Highlight Hardware Features:

Vertex² Exclusive: 4×2 Matrix/Splitter/Scaler for 4K HDR/DV 18Gbps/600MHz + Full HDMI Audio out (extract HDMI/ARC/eARC)

Vertex² central is featuring 4 HDMI inputs, 2 HDMI video output with scaling option and 1 dedicated HDMI full audio output at 720p or 1080p, LAN Control, RS232, L/R stereo or Optical 5.1 output, IR RX, IR sensor, IR window, OLED display and 4 buttons on the side allowing to enter/exit and perform change in the device system menu. Vertex² offers an unique and exclusive output management to accommodate Android TV and such sink devices that perform annoying check in standby mode.

All inputs are capable of 4K HDR/HLG/DV/LLDV/HDR10+ up to 18Gbps for video and support any sound format in existence today, HDMI TX0 and TX1 video outputs are capable of outputting 18Gbps and all sound formats as well.

Vertex² is always running in a Matrix/Scaler mode ensuring your setup remains optimized at its best capabilities

4×2 Splitter/Switcher/Scaler up to 4K60 4:4:4 600MHz 18Gbps + HDMI audio out

Splitting any signal up to 4K60 4:4:4 600MHz signal is now a reality, thanks to IR/RS232/push buttons or Webserver, you can easily switch between 4 inputs that will be replicated up to 2 outputs for video and 3 outputs for audio (one UHD / one UHD/FHD + HDMI Audio out). HDCP conversion and scaling rules are auto configured and applied on the fly in order to always output the type of video signal and HDCP encryption that your display or sink device is expecting.

4×2 Matrix up to 4K60 4:4:4 600MHz 18Gbps + HDMI audio out

Matrix solution is available for HDMI stream up to 4K60 4:4:4 8b, 4K60 4:2:2 12b, 4K120 4:2:0 8b or 8K30 4:2:0 8b. Process two 18Gbps signals at the same time from 2 sources to 2 sinks devices and have one of the channel duplicated and converted in res/hdcp/chroma/color depth/color space/etc to 1080p + a third output with HDMI audio out.

Highlight Video Features:

HDR Fixer

Vertex² is capable of injecting and extracting live Infoframe and HDR metadata at any resolution in real time. Decipher incoming HDR/HLG/DV metadata and AVI infoframe, build your own Custom HDR metadata and AVI infoframe thru HDfury metadata and infoframe creator, translate HLG>HDR, replace or boost value from any metadata on the fly or simply disable all or just some of them. Additionally Vertex² also support VSIF, AUD, HVS, HFV and others infoframes.

EDID Manager with endless possibilities

Download EDID from any inputs or outputs, Upload or assign any EDID to any of the 4 inputs from a list of 100 predefined EDIDs (10 custom / 90 dedicated). It loads and reset HPD to present your chosen one automatically

5 different EDID modes are available: Copy TX0, Copy TX1, Fixed EDID, Custom or Automix.

In Automix EDID mode: 13 EDID flags can be forced and mixed thru 5 EDID Algorithms.

Vertex² automatically sniff and store DV mandatory string from connected DV capable sink.

Ultimate capabilities Up&Down Scaler up to 4K60 4:4:4 600MHz/18Gbps

Always feeding best capabilities HDMI signal to connected sink devices, automatically or manually. No matter if you have HDMI first generation or second generation equipment, any devices always get the best possible signal in FHD(1080p) or UHD(2160p) GUARANTEED. Featuring Upscale, Downscale, Passthru and Bypass mode as well as Chroma Conversion, Color Space and Color Depth modification on the fly at 8, 10, 12 and 16bit for FHD, UHD and DCI 4096x2160p. Each output can be set with individual scaling rules.

Highlight Audio Features:

Extract up to Atmos HBR over TrueHD from TV eARC Input to ANY AVR input (eARC-KEY World 1st)

eARC (for up to Atmos High Bit Rate over True HD) is possible when eARC TV is connected at Vertex² TX0 HDMI video output, extracted sounds from TV APPS will be output from Vertex² HDMI audio output that can feed any AVR input.

Extract up to Atmos over DD+ from TV ARC Input to ANY AVR input (ARC-KEY World 1st)

ARC (for up to DD+/Atmos over DD+ bitstream) is possible TX0 HDMI video out. You can select to route this Audio to the HDMI3 (dedicated audio out) to feed any AVR input and/or optical output.

Max Audio capabilities and format extracted from any sources to feed any AVR input. (AVR-KEY)

Thru a dedicated HDMI Audio output, any HDMI sound format from any incoming signal is automatically extracted and forwarded via a 720p/1080p self-generated stream to feed any AVR input. High end ARC and eARC Audio format from TV apps are output to your AVR input thru the same HDMI Audio output.

HDMI Audio Extracting

HDfury Vertex² can extract HDMI audio up to 5.1 and pass-thru any sound format in existence today including Atmos and latest via HDMI while downscaling the video for older AVRs, it have a simultaneous output of analog L/R stereo and up to 5.1 optical S/PDIF via 3.5mm combo jack connector.

Highlight Convenience Features:

Autoswitch ANY sources (World 1st)

TMDS/pixel clock switching, sole switch in the world capable of autoswitching sources such as ATV4K, X1X, Shield or any others sources devices who keep sending +5v in standby and that no switcher in the world can autoswitch.

Furiously advanced Web Server

If you though, like people claim, that we have the best Windows GUI software... Now discover the brand new HDFury Webserver. More powerful with more available options than any Windows GUI we ever did, controlling your HDFury has never been so easy, fast and elegant. No more driver installation or hassle of any kind, superfast in-system firmware update and wide compatibility with any web browser devices (Mac/Win/Linux/iOS/Android and others). Just type in your Vertex² URL in your browser address bar and start controlling and supervising your setup!

HDMI Explorer (OSD/OLED/WEB)

Signal and setup info is everywhere and always available at first sight. Enhance your AV knowledge thru exact signal timing report with up to 3 digits decimals accuracy on frame rate. Display source name, resolution, chroma, colordepth, colorspace, hdcp, cst1, VIC, eotf, colorimetry, primaries, white point, max/min lum, maxCLL, maxFall, range and various infoframe (hdr, hlg, dv, spd, aud, hvs, vsi, hfv). Our new generation hardware is bringing HDMI explorer to another level, simply anything that travel thru is intercepted and exposed to the user via OLED display, On Screen Display or Web server.

RS232 and IP Control your unit and command your display

Initially build for and by the JVC PJ owners community, Vertex² is now capable of sending any custom RS232 commands to any RS232 capable display based on incoming signal types or particular metadata value. Decide which RS232 commands to send to your display when content is 3D, HDR10, SDR BT709, SDR BT2020 and more. All Vertex² controls are also available via RS232 and IP commands in order to ensure a total control from any serial based computer.

TOTAL CONTROL

Vertex² can be controlled via IR/RS232/IP/push buttons or any web browser based devices (MAC/WIN/Linux/Android/iOS/etc..) thru embedded Webserver. RS232 is compatible for any serial based computer, IR control and various physical buttons for configurations are also available. Thanks to the community, IR pronto code list is added to [iRule](#) and [Logitech Harmony](#) for even easier and seamless integration

HDMI/CEC TOTAL COMMANDER

HDFury Vertex² offers a unique CEC command manager, with CEC compatible equipment. CEC commands allow a HDMI device to send commands to connected HDMI devices.

Highlight HDCP Features:

Unique HDCP Doctor

Providing a total of 15 HDCP 1.4 and 2.2 engines for decryption/encryption, HDFury Vertex² offers a total HDCP workaround solution including HDCP 2.2 > HDCP 1.4 and HDCP 1.4 > HDCP 2.2 both ways conversion within the same unit. It is capable of connecting any HDCP1.x or HDCP2.x source devices to any HDCP1.x or HDCP 2.x sink devices. Each RX block decrypts the input first whether its 1.x or 2.x. Then each output port can individually encrypts it to 1.4 or 2.2 or not encrypt it at all if it was not encrypted initially. Dual conversion can be operated on all channels simultaneously.

Display HDCP 2.2 Content with Non-HDCP2.2 Compliant Devices

HDCP 2.2 is the new copy-protection scheme for 4K UHD content. Source devices, including media servers and head-ends like Netflix, will encode their 4K content with this new scheme. TVs must be HDCP 2.2-enabled to play it, and everything in the video chain including switches and receivers must be compliant as well, or the display will go dark and/or display a HDCP error message. Bad news for consumers who have purchased expensive, high-bandwidth, processor-rich switchers, receivers and displays to accommodate 4K. Once Vertex² is an active part of your setup such issue will not bother you ever again.

Main Specifications

- ▶ 4x Input / 2x Output Splitter/Matrix/Scaler + Audio out (HDMI2.0b/HDMI1.4/DVI1.0 compatible)
 - 4K60 4:4:4 600MHz 18Gbps Pass through
 - 4K24/25/30/50/60 <> 1080p24/25/30/50/60 Upscale/Downscale with or without colordepth maintained and with or without chroma conversion.
 - Video Bandwidth - 18 GBP/sec.
 - HDR10+/Dolby Vision Support.
 - 4K 10, 12, 16 Bit Support
 - 16 Bit Per Pixel Deep Color Depth Available (48 Bit)
 - Max Res: 4K60 4:4:4 8b, 4K60 4:2:2 12b, 4K120 4:2:0 8b or 8K30 4:2:0 8b
 - Signal Conversion: Resolution, Chroma Subsampling, Color Space, Color Depth, HDCP
- ▶ HDCP Doctor (HDCP Workaround solution to any HDCP error)
 - HDCP 2.2 > HDCP 1.4 conversion
 - HDCP 1.4 > HDCP 2.2 conversion
 - HDCP x.x > HDCP x.x conversion
 - Dual HDMI2.0b & HDMI 1.4 combined
 - Dual HDCP 1.4 & HDCP 2.2 combined
- ▶ CEC Support: For inter-device control between both inputs and the primary output TX0 HDMI channel.
- ▶ OLED infoscreen and OSD to provide useful and insight view of signal information
- ▶ Audio Extracting: Audio De-Embedder of Optical & Analog L/R
- ▶ Advanced EDID management via IR, IP, RS232 or Webserver
 - Improved EDID Management solution with either a Selected EDID bank, Custom uploaded EDID, Self-generated Automix EDID or a Fixed basic EDID.
 - Sniff EDID from connected sink devices, Save, Edit, Load any custom EDID table at any time.
 - Select and pick any EDID of your choice from a preloaded list of EDID tables, it loads and reset HPD to present your chosen one automatically.
 - AutoMix EDID feature will create a custom EDID by mixing both sink EDID connected to the splitter output ports.
 - Some EDID flags can be forced in Automix such as: Stereo/5.1/Full/YCbCr/BT2020/HDR/3D
 - Each input can run a specific/individual EDID.
- ▶ Infoframe Modes: Capture, edit, block or replace HDR metadata, AVI & VSIF.
Read SPD, Audio, HDMI Vendor, HDMI Forum
- ▶ Control Modes: IR, IP, RS232 or Webserver for Linux/MAC/Win/Android/iOS.
- ▶ HDMI Booster/Extender: Capable of extending 1080p resolution up to 15m. in and 15m. out (30m. total for 1080p), UHD resolution up to 10m.
- ▶ HDMI Doctor: Solves most HDMI integration issues such as HDCP, EDID, HPD, and audio breakout.

Disclaimer: 3rd party and/or custom firmware providing extra features are not covered in this manual.

- › HDMI Equalevel: Precise signal equalization for both input and output signals delivers the best possible picture quality with no dropouts.
- › Hot-Plug control: Force the input device to always see an active connection.
- › Deep Color Support
- › xvYCC Color Support
- › Flexible/Portable/Plug'n Play
- › 3D Ready: Capability to pass 3D stereoscopic signal formats.
- › Public API/DLL access and extensive control to extract, edit and inject HDR metadata, AVI and VSIF Infoframe. Read SPD, Audio, Vendor Specific and more.
- › Share your config with the community, display any text on OSD, set your start page, remove visually annoying or lamp consuming artifacts like TV channel logo and more.

Supported Audio/Video Signals

- › Supported Format: SD/HD/FullHD/UHD/4K30/4K60, basically INPUT/OUTPUT any video format up to 4K60 4:4:4 600MHz 18Gbps.
- › Supported Resolution examples:
480p/720p/1080i/1080p24/1080p25/1080p30/1080p50/1080p60/1440p50/1440p60/2160p24/2160p25/2160p30/2160p50/2160p60 and DCI
- › Support all UHD/BR and HDR standard resolution: 4K60 4:2:2 12bit BT2020 HDR, 4K60 4:2:0 10bit BT2020 HDR, 4K60 4:2:0 12bit, 4K30 4:4:4 12bit, ..
- › Support all VESA mode video formats (PC Resolutions) up to ultra-high resolution such as WQSXGA, QUUXGA, QFHD, WQUXGA, 4K
- › Support any Audio format such as PCM at up to 192kHz, compressed audio (IEC61937), DSD, DST,DTS, DTS-HD, Dolby True HD, DTS-MA, HBR, DD+, DTS:X and Dolby Atmos.

Technical Specifications

- › I/O: 4x HDMI In, 3x HDMI Out, IR, RS232, RJ45, Analog Mini Jack, Optical S/PDIF Out.
- › OLED Display: 3.12" diagonal, 256×64, 16 blue colors
- › Audio: PCM at up to 192kHz, compressed audio (IEC61937), DSD, DST, DTS, DTS-HD, Dolby True HD, DTS-MA and HBR.
- › Power Supply: External 12 Volt
- › Input Lag: <1ms (nanoseconds count)
- › Product Dimensions: 4.5"L x 7.3"W x 0.9"H – in CM: 11.5 x 18.5 x 2.4 Weight: 520g – 1.15 LBS
- › Shipping Dimensions: 6.3" x 4.2" x 3.3", Weight: 16 oz
- › Enclosure: Black PVC/black metal with Blue OLED
- › Regulation: CE, EAC, FCC, RoHS, WEEE

Disclaimer: 3rd party and/or custom firmware providing extra features are not covered in this manual.

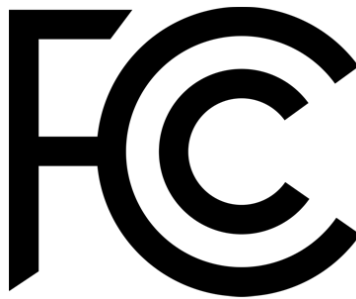
Certifications



[Vertex² CE Certification](#)



[Vertex² RoHS Certification](#)



[Vertex² FCC Certification](#)

Pro Tips

-Dolby Vision: DV mode 0 and 1 travels thru 8b RGB container, so it is normal that Vertex² report RGB 8b when playing such DV mode. If Vertex² is not directly connected to your DV TV and you have equipment in between, please first connect Vertex² TX0 output to your TV input and let Vertex² boot up. Then disconnect and insert equipment in between. Vertex² will sniff the DV string from your TV EDID and present it to your source, therefore allowing you to go thru equipment that doesn't support Dolby Vision.

- HDMI TX0 Output is CEC/ARC and eARC capable.

- Ex of AVI InfoFrame:

BT.2020 RGB 00:E8:64:5D:00

BT.2020 YCbCr 4:2:2 20:E8:64:5D:00

BT.2020 YCbCr 4:4:4 40:E8:64:5D:00

BT.2020 YCbCr 4:2:0 60:E8:64:5D:00

4k24 422 709 ycbcr no-bt2020 20:88:00:00

4k24 422 ycbcr bt2020 20:c8:60:00

4k24 444 709 ycbcr no-bt2020 40:88:00:00

4k24 444 ycbcr bt2020 40:c8:60:00

1080p 422 709 ycbcr no-bt2020 20:88:00:10

1080p 422 ycbcr bt2020 20:c8:60:10

-iRule use \x0D instead of \r (or \x0A for /n) to terminate the RS232 command string.

- Some sources like X1S or K8500 might need to have powercord removed/reconnected between EDID changes

- Atmos via ARC require HDMI Cable that support 192khz ARC, even if a cable support 600MHz video signal it can still fail for 192khz audio signal.

- You can read one, or mix two or three connected Sink EDIDs, apply forced flags and algo to it and then save it as an EDID file, thus creating your own Custom EDID variation.

- Any 4:2:2 signals is always processed at 12b and never clipped. That's why it mentions "up to 12b".

- Source VS Vertex² frame rate reported: Actually very few devices will report the correct frame rate. It is all about the clock frequency, the theory is $24/1.001 = 23.976023976$

BUT there is no PLL (https://en.wikipedia.org/wiki/Phase-locked_loop) at the source that actually gives a corresponding clock which would yield that. So once a signal leaves the source, the clock is always off and usually ebbs and flows, means changes all the time. We just decided to show what it really is from the particular source rather than approximating what it should be as many are doing since they cannot report exact frame rate like we are doing with Vertex².

Team HDfury thanks you for your support

For help visit our [support server](#) or [contact us](#).



www.HDfury.com

Vertex² was built with love and passion.