

# Extron

## Specifications

### Quantum Ultra

**NOTE:** The Quantum Ultra 610 has 10 slots for input or output cards, and the Quantum Ultra 305 has 5 slots.

#### TRUE 4K specifications

Max. 4K Capabilities		
Resolution and Refresh Rate	Chroma Sampling	Max. Bit Depth per Color
4096x2160 at 30 Hz	4:4:4	8 bit
3840x2160 at 30 Hz		
4096x2160 at 60 Hz		
3840x2160 at 60 Hz		

Frame rate<sup>1</sup> ..... 24, 25, 30, 50, or 60 fps  
 Chroma sampling<sup>1</sup> ..... 4:4:4 or 4:2:2  
 Color bit depth<sup>1</sup> ..... 8 or 10 bits per color  
 Signal type ..... DVI 1.0, HDMI 1.4, and HDCP 1.4  
 Max. video data rate ..... 10.2 Gbps (3.4 per color) per connection

**NOTE:** <sup>1</sup>Subject to the maximum data rate limit. Use our calculator at [www.extron.com/8Kdata](http://www.extron.com/8Kdata) to determine video parameters supported by this data rate.

**NOTE:** This product requires two or four parallel connections to achieve 4K at 50 or 60 fps.

#### Video input — HDMI — IN4HDMI

Number/signal type ..... HDMI/DVI (HDCP 1.4 compliant)  
 Connectors ..... 4 female HDMI  
 Maximum pixel clock  
     Inputs 1 and 3 ..... 165 MHz  
     Inputs 2 and 4 ..... 300 MHz  
 Formats ..... RGB and YCbCr digital video  
 Horizontal frequency ..... 15 kHz to 135 kHz  
 Vertical frequency ..... 24 Hz to 120 Hz  
 Resolution range ..... 640x480 to 3840x2400\*  
     480i, 576i, 480p, 576p, 720p, 1080i, 1080p, 2048x1080, 4096x2160\*  
 \*4K resolutions are supported up to 30 Hz refresh rate. 4K at 60Hz is supported using two or four parallel connections.

**NOTE:** Pixel clocks up to 300 MHz are supported on input connectors 2 and 4 only. The unit disables adjacent input connectors 1 or 3 when configured to support 300 MHz.

Standards ..... DVI 1.0, HDMI 1.4, HDCP 1.4

#### Video processing — HDMI — IN4HDMI

Digital pixel data bit depth ..... 8 or 10 bits per channel  
 Colors ..... 1.07 billion (10-bit processing with full 4:4:4 sampling)

#### Video input — SMD — IN SMD 100

Number/signal type ..... Up to 30 H.264/AVC digital video over IP (quantity dependent on stream resolution)  
 Connectors ..... 2 shielded RJ-45 (decoding capability distributed equally between connections)  
 Ethernet data rate ..... 10/100/1000Base-T

# Specifications • Quantum Ultra (Continued)

## Streaming protocols

Pull streams.....	RTP/RTCP (RFC 3550), RTSP (RFC 2326), interleaved RTSP (RTP/RTSP), RTP/RTSP tunneled through HTTP
Push streams .....	MPEG-2 TS/UDP (ISO/IEC 13818-1), MPEG-2 TS/RTP (RFC 2250), Direct RTP (RFC 3984)
Stream discovery.....	SAP (RFC 2974), SDP (RFC 4145, RFC 4566)
Transport .....	TCP, UDP, multicast IGMPv2 (RFC 2236), IGMPv3 (RFC 3376), SSM (RFC 3569, 4607), or unicast (pull streams only)
Network protocols .....	ARP, DHCP, DNS, HTTP, HTTPS, ICMP (ping), SSH, SSC, Telnet, TLS
Container (if included).....	MPEG-2 TS (MPEG-2 part 1 or ISO/IEC 13818-1 or ITU-T Rec. H.222.0) MP4 (MPEG-4 part 14 or ISO/IEC 14496-14)
Video coding .....	MPEG4 part 10 (AVC) H.264 BP, MP, HiP to level 4.2 (<25 Mbps over 1 second), MJPEG

## Video processing — SMD — IN SMD 100

Source rates..... 480p to 1920x1080p @ 60 Hz

**NOTE:** Interlaced streams are not supported.

Maximum average bit rates.....	25 Mbps per stream (1 second average)
Latency .....	1.0 second maximum
Digital sampling.....	24-bit, 8 bits per color, 165 MHz pixel clock maximum
Colors.....	16.78 million (8-bit processing)

## Video output — HDMI — OUT4HDMI

Number/signal type.....	HDMI/DVI (HDCP 1.4 compliant)
Connectors.....	4 female HDMI
Maximum pixel clock.....	Outputs 1 and 3 165 MHz Outputs 2 and 4 300 MHz
Peripheral device power .....	250 mA per output
Vertical frequency .....	23.98 Hz, 24 Hz, 25 Hz, 29.97 Hz, 30 Hz, 50 Hz, 59.94 Hz, 60 Hz
Scaled resolutions.....	1024x768, 1280x768, 1280x800, 1280x1024, 1360x768, 1366x768, 1440x900, 1400x1050, 1400x1050, 1680x1050, 1600x1200, 1920x1200, 2048x1200, 2048x1536*, 2560x1080*, 2560x1440*, 2560x1600*, 3840x2400*, 4096x2400**, CUSTOM 720p, 1080p, 2048x1080, 1920x2160, 2048x2160, 3840x2160*, 4096x2160*
	*Supported on connectors 2 and 4 only
	**Requires 4 parallel connections.

**NOTE:** Pixel clocks up to 300 MHz are supported on output connectors 2 and 4 only. The unit disables adjacent output connectors 1 or 3 when configured to support 300 MHz.

Standards..... DVI 1.0, HDMI 1.4, HDCP 1.4

## Video output — DTP — OUT4DTP

Number/signal type.....	4 DTP, XTP, or HDBaseT (configurable, HDCP compliant)
Connectors.....	4 female RJ-45
Termination standard .....	TIA/EIA T568B
Maximum pixel clock.....	Outputs 1 and 3 165 MHz Outputs 2 and 4 300 MHz
Maximum pixel clock.....	Outputs 1 and 3 165 MHz Outputs 2 and 4 300 MHz
Vertical frequency .....	23.98 HZ, 24 Hz, 25 Hz, 29.97 Hz, 30 Hz, 50 Hz, 59.94 Hz, 60 Hz

# Specifications • Quantum Ultra (Continued)

Scaled resolutions..... 1024x768, 1280x768, 1280x800, 1280x1024, 1360x768, 1366x768, 1440x900, 1400x1050, 1680x1050, 1600x1200, 1920x1200, 2048x1200, 2048x1536\*, 2560x1080\*, 2560x1440\*, 2560x1600\*, 3840x2400\*, 4096x2400\*\*, CUSTOM  
720p, 1080p, 2048x1080, 1920x2160, 2048x2160, 3840x2160\*, 4096x2160\*  
\*Supported on connectors 2 and 4 only  
\*\*Requires 4 parallel connections.

**NOTE:** Pixel clocks up to 300 MHz are supported on output connectors 2 and 4 only. The unit disables adjacent output connectors 1 or 3 when configured to support 300 MHz.

Standards..... DVI 1.0, HDMI 1.4, HDCP 1.4

## Communications — external device (pass-through, unidirectional, or bidirectional) (RS-232/IR over TP)

**NOTE:** Protocol is mirrored between the connected TP endpoints and the "Over TP" ports on the OUT4DTP. Signals from a control device pass into each OUT4DTP "Over TP" port, are embedded with the TP signal, and sent to individual TP Rx endpoints for control of remote sink devices.  
  
The "Over TP" ports are simple pass-through connections to TP endpoints. There is no IR insertion from any Quantum Ultra control port to the "Over TP" ports. RS-232 can be inserted from the Ethernet connection.

### Serial control pass-through ports

"Over TP" output..... RS-232 via (4) 3.5 mm, 5-pole captive screw connectors (shared with IR ports)  
Baud rates ..... 9600, 19200, 38400, 115200 baud  
Protocol ..... 6 - 8 data bits  
1 or 2 stop bits  
no parity (default), even or odd parity  
flow control = XON, XOFF, none  
  
Serial control pin configuration 1 = Tx, 2 = Rx, 3 = Gnd  
IR pass-through control ports..... TTL level (0 to 5 V) modulated infrared control from 30 kHz up to 60 kHz  
"Over TP" output..... (4) 3.5 mm, 5-pole captive screw connector (shared with RS-232 port)  
IR control pin configuration..... 3 = Gnd, 4 = IR Tx, 5 = IR Rx

## Communication — Control

Serial control port..... 1 RS-232 on 3-pole captive screw connector on rear panel  
Baud rate and protocol ..... 9600, 8-bit, 1 stop bit, no parity (default)  
Pin configurations ..... 1 = Tx, 2 = Rx, 3 = Gnd  
Ethernet ports ..... 2 female RJ-45  
Ethernet default settings..... Link speed and duplex level = autodetected  
LAN A IP address = 192.168.254.254  
LAN B IP address = 192.168.1.254  
Subnet mask = 255.255.255.0  
Gateway = 0.0.0.0  
DHCP = Off  
  
Ethernet data rate..... 10/100/1000Base-T, half/full duplex with autodetect  
Protocols ..... ARP, DHCP, DNS, HTTP, ICMP, NTP, SSH, SMTP, TCP/IP, Telnet, UDP/IP  
USB control port..... 1 female USB mini-B on rear panel  
Program control ..... Extron Videowall Configuration Software (VCS) for Windows®  
Extron Simple Instruction Set™ (SIS™)  
Telnet

## Communication — Chassis to chassis interconnection

Number/signal type ..... 32 HyperLane channels  
Connectors..... 3 female MPO (12 fibers per connector)  
Data rate ..... Up to 15.7 Gbps per channel  
HyperLane expansion limit..... 5 chassis

# Specifications • Quantum Ultra (Continued)

## Communication — Setup

Number/signal type .....	1 HDMI
Connector .....	1 female HDMI
Vertical frequency .....	24 Hz to 60 Hz
Resolutions .....	640x480 to 1920x1200
USB control ports .....	3 USB type A
USB standards .....	USB 2.0, USB 1.1, USB 1.0 compatible
USB data rates .....	Low speed (1.5 Mbps), full speed (12 Mbps)

## General

Power supply	
Quantum Ultra 610 .....	Internal, primary and redundant*, hot-swappable Input: (2*) 100-240 VAC, 50-60 Hz *A redundant power supply is standard.
Quantum Ultra 305 .....	Internal Input: 100-240 VAC, 50-60 Hz
Power consumption (full load)	
Quantum Ultra 610 .....	174-571 watts (varies with configuration)
Quantum Ultra 305 .....	101-288 watts (varies with configuration)
Power consumption (power save)	
Quantum Ultra 610 .....	60 watts
Quantum Ultra 305 .....	38 watts
Temperature/humidity .....	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +95 °F (0 to +35 °C) / 10% to 90%, noncondensing
Cooling .....	Fans, right to left (as viewed from the front panel)
Thermal dissipation .....	
Quantum Ultra 610 .....	208-1941 BTU/hr (varies with configuration)
Quantum Ultra 305 .....	127-956 BTU/hr (varies with configuration)
Mounting	
Rack mount .....	Yes
Enclosure type .....	Metal
Enclosure dimensions	
Quantum Ultra 610 .....	10.5" H x 17.5" W x 22.3" D (6U high, full rack wide) (267 mm H x 445 mm W x 566 mm D) (Depth excludes connectors and handles. Width excludes built-in rack ears.)
Quantum Ultra 305 .....	5.25" H x 17.5" W x 19" D (3U high, full rack wide) (133 mm H x 445 mm W x 483 mm D) (Depth excludes connectors and handles. Width excludes built-in rack ears.)
Product weight	
Quantum Ultra 610 .....	59.8 lbs (28 kg), fully populated
Quantum Ultra 305 .....	35.9 lbs (16 kg), fully populated
Regulatory compliance .....	CE, c-UL, UL, KC, PSE, RoHs, and WEEE
Product warranty .....	3 years parts and labor
Everlast power supply warranty ....	7 years

**NOTE:** All nominal levels are at  $\pm 10\%$ .

**NOTE:** Specifications are subject to change without notice.

**NOTE:** Shipping weights and dimensions are available at [www.extron.com](http://www.extron.com).

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