

# All Quadra VPU Products

VPU | Codensity Quadra G5

2nd Generation Smart VPUs			
Server	Modules		
ASIC G5 <b>Quadra</b>	QUADRA VPU <b>T1U</b>	QUADRA VPU <b>T1A</b>	QUADRA VPU <b>T2A</b>

Performance				
ASIC Codensity chip	G5, T1Us (10x)	G5	G5	G5 (2x)
Price	starting at \$19,000	\$1,500	\$1,500	\$2,750
Form Factor	1RU Server	U.2	AIC, HHHL	AIC, HHHL
Power Consumption	~500W	17W	20W	40W
Real-time Throughput Up to:	20x 8Kp60 40x 4Kp60 160x 8Kp60	16x 1080p60 4x 4Kp60 1x 8Kp60	16x 1080p60 4x 4Kp60 1x 8Kp60	32x 1080p60 8x 4Kp60 2x 8Kp60
Latency	8 ms	8 ms	8 ms	8 ms
Encode Codecs	H.264, HEVC, AV1, JPEG, YUV			
Decode Codecs	H.264, HEVC, VP9, JPEG, YUV			
Audio Engines	MP3, AAC-LC, HE-AAC			
Features				
Artificial Intelligence	150 TOPS	15 TOPS	18 TOPS	36 TOPS
<b>New</b> Capped CRF	●	●	●	●
Cropping and Padding	●	●	●	●
Scaling	●	●	●	●
Video Overlay	●	●	●	●
Audio decode / encode	●	●	●	●
YUV / RGB Conversion	●	●	●	●
Configurable tuning of quality/throughput	●	●	●	●



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# Quadra Video Server

VPU | Codensity Quadra G5



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<b>CPU Options</b>	AMD EPYC™ 7232P Server Processor (8-core)
	AMD EPYC 7543P Server Processor (32-core)
	AMD EPYC 7713P Server Processor (64-core)
<b>Operating System</b>	Ubuntu 20.04.05 LTS <i>(as of May 2023)</i>
<b>Memory</b>	8x 16GB DDR4-3200
<b>Storage</b>	400GB M.2 SSD
<b>NVMe Support</b>	10x
<b>PCIe Expansion</b>	Up to 3x PCIe slots
<b>Network Options</b>	Dual 10GBase-T LAN
<b>Power Supply</b>	700W: 100 - 140Vac
	750W: 200 - 240Vac
	750W: 200 - 240Vdc (CCC only)
<b>Transcoders</b>	10x NETINT Quadra T1U
<b>Encoding Capacity</b>	Up to 40 4Kp60 or 320 1080p30
<b>Codec Support</b>	H.264 - Encode/Decode
	HEVC - Encode/Decode
	VP9 - Decode
	AV1 - Encode
<b>Transcoder Software</b>	FFmpeg, GStreamer

<b>Physical Dimensions</b>	W: 17.2" (437mm), H: 1.7" (43mm), D: 23.5" (597mm)
<b>Rack Size</b>	1U
<b>Weight</b>	39 lbs (17.69 kg) <i>(includes 10 processors)</i>
<b>Environmental</b>	50 degrees F to 95 degrees F Operating Temperature, 8% to 90% Operating Relative Humidity
<b>Power Inputs</b>	100 - 140Vac / 8 - 6V / 50-60Hz
	200 - 240Vac / 4.5 - 3.8A / 50-60Hz
	200 - 240Vdc / 4.5 - 3.8A (CCC Only)
<b>Certifications</b>	RoHS Compliant, UL Approved

# Quadra T2A VPU

Codensity ASIC G5



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<b>Form Factor</b>	AIC (HH HL)
<b>ASIC</b>	2x Codensity G5
<b>Interface</b>	PCIe 4.0 x4
<b>Protocol</b>	NVMe
<b>Power Consumption (Typ)</b>	40W
<b>Usage</b>	24/7 Operation
<b>Operation Temperature</b>	0 - 50°C
<b>RoHS Compliance</b>	European Union (EU) ROHS Compliance Directives
<b>Product Health Monitoring</b>	Self-Monitoring, Analysis, and Reporting Technology (SMART) commands Temperature Monitoring and Logging
<b>Video Encoding Standards/Formats</b>	AVC/H.264 Baseline, Main, High, High 10 HEVC/H.264 Main, Main 10 AV1 Main JPG YUV 420 8 bit/10 bit encoding
<b>Video Decoding Standards/Formats</b>	AVC/H.264 Baseline, Main, High, High 10 HEVC/H.265 Main, Main 10 VP9 Profile 0, 2 JPEG YUV 420 8 bit/10 bit decoding
<b>Throughput Capacity</b>	Up to 32x 1080p60, 8x 4Kp60, 2x 8Kp60
<b>Audio Codecs</b>	MP3, AAC-LC, HE-AAC
<b>Level</b>	1 to 6.2 Main Tier
<b>Resolution</b>	32 x 32 to 8192 x 5120
<b>Scan Type</b>	Progressive
<b>Bitrate</b>	64kbit/s to 700Mbit/s
<b>Software Integration</b>	FFmpeg SDKs, LibXcoder API integration
<b>AI Deep Neural Network Engine</b>	36 TOPS AI Assisted Encoding
<b>Region of Interest (ROI)</b>	ROI enables the quality of some regions to be improved at the expense of other regions
<b>Closed Captioning</b>	EIA CEA-708 for H.264 and HEVC encode/decode
<b>High Dynamic Range (HDR)</b>	HDR10, HDR10+, HLG for H.264 & HEVC encode/decode
<b>Low Latency</b>	Sub-frame latency
<b>IDR Insert</b>	Forced IDR frame inserts at any location
<b>Flexible GOP Structure</b>	8 presets plus customizable GOP structure
<b>Video 2D Processing Engine</b>	Crop & Padding/Scaling/Overlay/YUV & RGB Conversion

# Quadra T1A VPU

Codensity ASIC G5



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<b>Form Factor</b>	AIC (HH HL)
<b>ASIC</b>	1x Codensity G5
<b>Interface</b>	PCIe 4.0 x4
<b>Protocol</b>	NVMe
<b>Power Consumption (Typ)</b>	20W
<b>Usage</b>	24/7 Operation
<b>Operation Temperature</b>	0 - 50°C
<b>RoHS Compliance</b>	European Union (EU) ROHS Compliance Directives
<b>Product Health Monitoring</b>	Self-Monitoring, Analysis, and Reporting Technology (SMART) commands Temperature Monitoring and Logging
<b>Video Encoding Standards/Formats</b>	AVC/H.264 Baseline, Main, High, High 10 HEVC/H.264 Main, Main 10 AV1 Main JPG YUV 420 8 bit/10 bit encoding
<b>Video Decoding Standards/Formats</b>	AVC/H.264 Baseline, Main, High, High 10 HEVC/H.265 Main, Main 10 VP9 Profile 0, 2 JPEG YUV 420 8 bit/10 bit decoding
<b>Throughput Capacity</b>	Up to 16x 1080p60, 4x 4Kp60, 1x 8Kp60
<b>Audio Codecs</b>	MP3, AAC-LC, HE-AAC
<b>Level</b>	1 to 6.2 Main Tier
<b>Resolution</b>	32 x 32 to 8192 x 5120
<b>Scan Type</b>	Progressive
<b>Bitrate</b>	64kbit/s to 700Mbit/s
<b>Software Integration</b>	FFmpeg SDKs, LibXcoder API integration
<b>AI Deep Neural Network Engine</b>	18 TOPS AI Assisted Encoding
<b>Region of Interest (ROI)</b>	ROI enables the quality of some regions to be improved at the expense of other regions
<b>Closed Captioning</b>	EIA CEA-708 for H.264 and HEVC encode/decode
<b>High Dynamic Range (HDR)</b>	HDR10, HDR10+, HLG for H.264 & HEVC encode/decode
<b>Low Latency</b>	Sub-frame latency
<b>IDR Insert</b>	Forced IDR frame inserts at any location
<b>Flexible GOP Structure</b>	8 presets plus customizable GOP structure
<b>Video 2D Processing Engine</b>	Crop & Padding/Scaling/Overlay/YUV & RGB Conversion

# Quadra T1U VPU

Codensity ASIC G5



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<b>Form Factor</b>	U.2
<b>ASIC</b>	1x Codensity G5
<b>Interface</b>	PCIe 4.0 x4
<b>Protocol</b>	NVMe
<b>Power Consumption (Typ)</b>	17W
<b>Usage</b>	24/7 Operation
<b>Operation Temperature</b>	0 - 50°C
<b>RoHS Compliance</b>	European Union (EU) ROHS Compliance Directives
<b>Product Health Monitoring</b>	Self-Monitoring, Analysis, and Reporting Technology (SMART) commands Temperature Monitoring and Logging
<b>Video Encoding Standards/Formats</b>	AVC/H.264 Baseline, Main, High, High 10 HEVC/H.264 Main, Main 10 AV1 Main JPG YUV 420 8 bit/10 bit encoding
<b>Video Decoding Standards/Formats</b>	AVC/H.264 Baseline, Main, High, High 10 HEVC/H.265 Main, Main 10 VP9 Profile 0, 2 JPEG YUV 420 8 bit/10 bit decoding
<b>Throughput Capacity</b>	Up to 16x 1080p60, 4x 4Kp60, 1x 8Kp60
<b>Audio Codecs</b>	MP3, AAC-LC, HE-AAC
<b>Level</b>	1 to 6.2 Main Tier
<b>Resolution</b>	32 x 32 to 8192 x 5120
<b>Scan Type</b>	Progressive
<b>Bitrate</b>	64kbit/s to 700Mbit/s
<b>Software Integration</b>	FFmpeg SDKs, LibXcoder API integration
<b>AI Deep Neural Network Engine</b>	15 TOPS AI Assisted Encoding
<b>Region of Interest (ROI)</b>	ROI enables the quality of some regions to be improved at the expense of other regions
<b>Closed Captioning</b>	EIA CEA-708 for H.264 and HEVC encode/decode
<b>High Dynamic Range (HDR)</b>	HDR10, HDR10+, HLG for H.264 & HEVC encode/decode
<b>Low Latency</b>	Sub-frame latency
<b>IDR Insert</b>	Forced IDR frame inserts at any location
<b>Flexible GOP Structure</b>	8 presets plus customizable GOP structure
<b>Video 2D Processing Engine</b>	Crop & Padding/Scaling/Overlay/YUV & RGB Conversion