

Quadra Video Server

ARM Edition



Finally, a server with monster throughput has a tiny appetite for power

The Quadra Video Server Ampere Edition

Industry leaders united to consolidate your video transcoding process, accelerate core functionality and integrate multiple production processes into this high-performance server.

- HEVC, H.264 & AV1 encoding
- HEVC, H.264, & VP9 decoding
- Up to 8K resolution, 10-bit HDR
- Al enhanced productivity



2

Built for pushing streams to the cloud

When Quadra Video Processing Units (VPUs) handle complex video encoding and decoding tasks, it leads to significant advantages. Firstly, this approach offloads the workload from the Ampere 96-core CPU, enabling it to focus on other operations such as deinterlacing, and AV1/MPEG-2 decoding. Secondly, leveraging Quadra VPUs for these tasks results in a synergy that boosts throughput by tenfold while reducing costs -80%. This dual benefit represents a highly efficient and cost-effective solution.

Enterprise application integration

The Quadra Video Server Ampere Edition empowers video engineers to run additional publishing-related applications such as:

- Real-time captioning and translating with OpenAI/Whisper
- Dynamic ABR packaging
- Streaming orchestration and
- Content management

320

simultaneous live 1080p30 encoding sessions at ultra-low latency in a compact 1RU server



Ampere® Altra® Max Processor



Predictable High Performance

- 96 cores | 128 cores
- Coherent mesh-based interconnect
- High-memory bandwidth and density

High Scalability

- Industry leading power/core
- Cache-coherent multi-socket support
- Flexible I/O connectivity

Power Efficiency

- Advanced system, security and power management
- Monolithic die on leading 7nm process
- Leading power/core





NETINT Codensity G5

Smart VPU with AI

N VEIN S VEIN G55

High Performance Encoding

- 8K UHD Video Encoding
- On-chip AV1, H.264 and HEVC
- Up to 60% reduction in bitrate

Flexible Architecture

- Programmable micro-processor enables firmware optimization
- Pipeline processing improves performance and increases video quality

AI Processing Engines

- Two Deep Neural Network DNN engines onboard at 18 TOPS
- Enables object detection, classification and segmentation for image quality improvement and content-adaptive rate control
- Advanced performance and seamless integration for ROI (region-of-interest) encoding and background replacement





Simple Integration

Open-source suite of processing tools

Many video processing and transcoding applications developers use FFmpeg and GStreamer, two open-source software libraries offering a vast suite of video processing functions. The Quadra video server includes highly efficient FFmpeg and GStreamer compatible SDKs, allowing operators to apply an FFmpeg or GStreamer patch to complete the integration.

The libavcodec patch on the host server functions between the Quadra NVMe interface and the FFmpeg and GStreamer software layers simplifying integration and enabling fast and efficient performance and capacity upgrades.



What 96 cores can do for you





Decode MPEG-2 and AV1

At 1080p30, the Ampere CPU can decode incoming streams:

- over 320 MPEG-2 streams, utilizing only 30% CPU%
- around 100 AV1 streams, maxing out the CPU%

Deinterlace with Ease

The Ampere CPU is ideal for video engineers working with interlaced source content.



NETINT + Ampere = 3

Powerful performance delivering Whisper AI real-time captioning

The 96-core Ampere CPU is more efficient than any GPU or other CPU for Whisper AI voice-to-text transcription, and when combined with the video encoding powerhouse of NETINT VPUs, you get performance that simply cannot be beat.

(Available Q2 2024)

| GPU Nvidia A10 | | 126,550 | | | |
|---------------------------|--------|---------|---------|---------|-----|
| GPU Nvidia T4 | 65,464 | | | | |
| CPU Ampere M96-30 | | | | 201,0 |)55 |
| CPU Intel Gen 4 6442Y | | 127,872 | | | |
| CPU Intel Gen 3 8380 | | | 161,243 | | |
| CPU AMD Gen 4 9454 | | | | 188,573 | |
| CPU AMD Gen 3 7763 | | | 160,003 | | |

Number of inferences per second

Quadra T1U

Smart VPU with AI



| Form Factor | U.2 |
|-----------------------------------|--|
| ASIC | 1x Codensity G5 |
| Interface | PCle 4.0 x4 |
| Power Consumption (Typ) | 17W |
| Usage | 24/7 Operation |
| Operation Temperature | 0 - 50°C |
| RoHS Compliance | European Union (EU) ROHS Compliance Directives |
| Product Health Monitoring | Self-Monitoring, Analysis, and Reporting Technology (SMART) commands Temperature Monitoring and Logging |
| Encoding capacity | Up to 2x 8Kp30, 8 4Kp30 or 32x 1080p30 |
| Decoding capacity | Up to 4x 8Kp30, 12 4Kp30 or 48x 1080p30 |
| Codecs | Encode: H.264, HEVC, AV1, JPEG, HEIF, AVIF |
| | Decode: H.264, HEVC, JPG, VP9 |
| | Audio: MP3, AAC-LC, HE-AAC |
| Level | 1 to 6.2 Main Tier |
| Resolution | 32 x 32 to 8192 x 5120 |
| Scan Type | Progressive |
| Bitrate | 64kbit/s to 700Mbit/s |
| Software Integration | FFmpeg SDKs, GStreamer, LibXcoder API integration |
| AI Deep Neural Network Engines | 15 TOPS AI Assisted Encoding |
| Region of Interest (ROI) | ROI enables the quality of some regions to be improved at the expense of other regions |
| Closed Captioning | EIA CEA-708 for H.264 and HEVC encode/decode |
| High Dynamic Range (HDR) | HDR10, HDR10+, HLG for H.264 & HEVC encode/decode |
| Low Latency | Sub-frame latency |
| IDR Insert | Forced IDR frame inserts at any location |
| Flexible GOP Structure | 8 presets plus customizable GOP structure |
| Video 2D Processing Engine | Crop & Padding/Scaling/Overlay/YUV & RGB Conversion |
| | |



Quadra Video Server



| CPU Options | Ampere Altra Max M96-28, 96-cores |
|----------------------|--|
| Operating System | Ubuntu 22.04.3 LTS |
| Memory | 256GB of DDR4-3200 RDIMM |
| Storage | 400GB M.2 SSD |
| NVMe Support | 10x |
| PCIe Expansion | Three PCIe 4.0 x16 LP slots, one PCIe 4.0 x16 AIOM slot |
| Network Options | 1 RJ45 Dedicated IPMI LAN port 2x 25Gb SFP28 Ethernet LAN Ports |
| Power Consumption | ~500W |
| Power Supply | 800W Redundant Platinum Level power supplies |
| VPU transcoders | 10x NETINT Quadra T1U VPUs |
| Encoding capacity | Up to 20x 8Kp30, 80 4Kp30 or 320x 1080p30 |
| Decoding capacity | Up to 30x 8Kp30, 120 4Kp30 or 480x 1080p30 |
| Cadao Support | Encode: H.264, HEVC, AV1, JPEG, HEIF, AVIF |
| codec support | Decode: H.264, HEVC, JPG, VP9 |
| Software Integration | FFmpeg, GStreamer, NETINT SDK |

| Physical Dimensions | W: 54.5 mm x H: 40.25 mm x D: 220 mm |
|---------------------|--|
| Rack Size | 1RU |
| Weight | 39 lbs (17.69 kg) (fully loaded with 10 T1U VPUs) |
| Environmental | 50 degrees F to 95 degrees F Operating Temperature, 8% to 90% Operating Relative Humidity |
| | 750W: 100-127Vac / 50-60Hz |
| Power Inputs | 800W: 200-240Vac / 50-60Hz |
| | 800W: 230-240Vdc / 50-60Hz |
| Certifications | RoHS Compliant, UL Approved |

No command lines, just a friendly face.

Bitstreams is a web management tool to simplify live streaming workflows, automate FFmpeg and monitor VPU hardware usage.

- Comes preloaded on every NETINT Quadra Video Server ٠
- Designed for non-technicals with a friendly user interface and preconfigured templates to eliminate complicated **FFmpeg command lines**
- Dashboard give instant visibility of total live streams, alerts • and issues and VPU hardware usage



| A BITSTREAMS | Dashboard | | | | |
|---------------------------------------|---|-----------|--|--------------------------------------|--|
| | Streaming Activity | | Hardware Monitoring | | Quick Links |
| 🗄 Dashboard | Total LIVE Streams | | VPU Usage Memory usage | Load Average | Start New Stream |
| Encoding | 70 75 60 | 0 5 10 15 | Decoder 45% Encoder Scaler | 90% 92% | Support Center |
| Templates | 55 Running 50 Warning 20 | 20 | Shared 20 40 60 | 83% 80 100 | Ask our Support Team Email our technical team and one wi get back to you in 1-2 business days. |
| ↓†∔ Settings | Error 5 45 40 | 30 | CPU 50% | 24 Threads 75% 61.96 GB 80 100 | Documentation Find white papers and diagrams for information or troubleshooting issue |
| | Encoding Issues View Details > | | VPU Hardware Update Firmware | | Account Settings Edit Profile. Change Password. Manage Billing. |
| | Type Error Message | Stream | Device Model Location | Update Firmware Temp | |
| | This is an encoding issue | 1 | nvmeOn01 Quadra T1U Server 01 | 4806rJrl 51 | |
| | This is an encoding issue 2 This is an encoding issue 3 | 12 | nvmeOn03 Quadra T1U Server 01 | 4806rJrl 51 | |
| | This is an encoding issue 4 | 57 | nvme0n04 Quadra 110 Server 01 nvme0n05 Quadra T1U Server 01 | 4806rJrl 51 4806rJrl 52 | |
| | This is an encoding issue 5 | 123 | nvmeOn06 Quadra T1U Server 01 | 4806rJrl 52 | |
| | This is an encoding issue 6 This is an encoding issue 7 | 1a1 | TOTAL installed: 6 | | |
| PL | | | | | |
| Documentation | | | | | |
| Support Ver 1.2.0 Account Settings | | | | | |
| Log Out | | | | | |
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| | Encoding | | | | Encoding |
|-----------------|---|---|---|--|--|
| | From this page users can view the status of current encoding sessions, along start streams and navigate to a more detail page by clicking on the stream na To create a new stream, use the "+ Create New Stream" button on the right ha | with viewing the current configuration. Users are also able to stop, me. nd side of the screen. | | + Create New Stre | Automation |
| | | | | O Reset Search | Automation |
| | Stopped test stream | Input URL \$ srt://CLI506:10080?streame2-d5bc2b060d21,m=publish | Template | Message ¢ 182…d6-9b6c-b51055b5e164.m3u8 | Overview of all the encodir |
| 🖽 Dashboard | BITSTREAMS just a test | | http://CLI506/live/dbb | 1828d6-9b6c-b51055b5e164.mpd | sessions that have been |
| | Stopped sdfgsdfg BITSTREAMS testing | rtmp://CLI506:1935/live/d25-47a5-acef-260684a14ad9 | H.264 test | | configured on the system. |
| Encoding | Stopped asda | rtmp://CLI506:1935/live/125-46d8-a84c-0f440c8adde0 | H.264 http://CLI506/live/4fc9 http://CLI506/live/4fc9 | 2082-9b8a-3d35c7c2b8c7.m3u8 2016-aa1a-47a2-9b8a-3d35c7c2b8c7.mpd | |
| Townslates | Active | udp://224.0.0.35.8880 | H.264 http://CLI506/live/711 http://CLI506/live/711 | 55599-bc36-5956c2154774.m348 This is a encoding issue2 55599-bc36-5956c2154774.mpd | |
| | Daconvected | rtmp://CLI506.1935/live/a89-4299-bba0-bd02bd4f2579 | H.264 http://CLI506/live/727 http://CLI506/live/727 | :8929-fbcf-4251-89bd-3a38fbcb9a1f.m3u8 This is a encoding issue3 :8929-fbcf-4251-89bd-3a38fbcb9a1f.mpd | |
| ↓†† Settings | ide 15 | rtmp://CLI506.1935/live/8f5d1cca-f475-462f-a610-9a2b152071f7 | H.264 http://CLI506/live/b07: http://CLI506/live/b07: | 8c692-b432-058f0d4f47c9.m3u8 This is a encoding issue4 ac6ad-9b25-4f92-b432-058f0d4f47c9 mpd | |
| | Ide 123 | rtmp://CLI506.1935/live/ea6-4749-8ad5-0f151235d193 | H.264 http://CLIS06/live/567 http://CLIS06/live/56 See Additional Outpu | A BITSTREAMS Encoding Stream Details | IDLE |
| | Ide BITSTREAMS | rtmp://CLJ506.1935/live/3706b207-0b2b-4a69-bc44-7fdf90f6f194 | H.264 rtmp://12 rtmp://1234 rtmp://1235 rtmp://1236 rtmp://1237 See Additional Outpu | Dashboard Dashboard Emcoding | |
| | Disconnected 2a2 | rtmp://CL1506-1935/live/5c3-480a-a776-3c1e0d731d84 | H.264 http://CLI506/live/0b http://CLI506/live/0b | Templates | Start Encoding |
| | Idle 1234 | rtmp://CLJ506:1935/live/0cd-4e24-81af-405012f845bc | H.264 123 123412 12312 | Settings Stream URLs Events Rec Copy of pairs from preferent URLs Copy of pairs from preferent URLs the pairs and share preferences Input URLs of pairs from preferences Unput URLs of pairs from preferences | UVR Enabled UVR Enables UVR E |
| | | Total 15 10/page V < 1 | 2 > Go to 1 | Backup Input URL udp.//239.31.1.1.9000%cealaddh | -1922 148 18 101 Cover Graphic |
| | | Detailed view of the li configuration, also co | ve stream ontains a | Playback URLs The tablest depicting from this and grane when a tablest depicting from this and grane when a tablest depicting from the tablest depicting from the tablest depicting from tablest depicting fro | |
| | | preview of the output | stream. | | |

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encoding been ystem.



| 🔺 B | ITSTREAMS | Templates | | | | |
|-----|------------------|---|---|--------------------------------------|---|---|
| | EDGE | From this page users can view all the Users will then be able to modify the To create a new template, use the * | he templates configured. By clicking on the row, a summary of the temp e template by clicking the edit icon. + Create New Template" button on the right hand side of the screen | late will be displayed on the right. | | + Create New Template |
| | | | | D Reset Search | Preview Configuration | |
| | Dashboard | Name ≑ | Used 🗢 | Created 🜩 | 1aaaa | R |
| | | template1 | 0 | 2024-09-25 16:18:19 | | |
| | Encoding | asdad | 0 | 2024-09-10 22:42:56 | Output Format | |
| | Encouning | 123 | 0 | 2024-08-21 23:55:22 | HLS Format fmp4 | Segment Duration 1 sec |
| | | 123a12 Default | 0 | 2024-08-01 00:28:07 | Window Size 3 sec | |
| | Templates | 1212311 | 0 | 2024-07-31 21:56:54 | Video Parameters | |
| | | 12342 | 0 | 2024-07-12 23:34:52 | Output 1 H.264 4500kbps 30fps 1920x1080 | Output 2 H.264 4500kbps 30fps 1920x1080 |
| | o | 123a | 0 | 2024-07-10 00:42:09 | Output 3 H.264 4500kbps 30fps 1920x1080 | Output 4 H.264 4500kbps 30fps 1920x1080 |
| †1† | Settings | 1237 | 0 | 2024-07-09 21:40:30 | Output 5 AV1 4500kbps 30fps 1920x1080 | Output 6 H.265 4500kbps 30fps 1920x1080 |
| | | 1aaaa | 1 | 2024-07-08 16:18:44 | Output 7 H.264 4500kbps 30fps 3840x1080 | Output 8 H.264 4500kbps 30fps 1920x1080 |
| | | adsda | 1 | 2024-07-06 01:44:57 | output > Av 14000k0p3 301p3 192041000 | 1920x1080 |
| | | | | | Audio Parameters | |
| | | | 10tal 21 10/page V 1 2 3 | > Go to 1 | Output 1 COPY copy und 48k 128kbps 0chs | Output 2 AAC copy und 48k 128kbps 0chs |
| | | | | | Output 3 COPY copy und 48k 128kbps 0chs | Output 4 AC3 copy und 48k 128kbps 0chs |
| _ | | | | | Output 5 COPY copy und 48k 128kbps 0chs | Output 6 COPY copy und 48k 128kbps 0chs |
| | Video Parameters | Audio Parameters | Advanced Format Graphics Overlay | | | |
| | Output | Codec | Bitrate (kbps) | Frame Rate (FPS) | | |
| | 1 | H.264 | 4500 | 30 | | |
| | 2 | H.264 | 4500 | 30 | | |
| | 3 | H.264 | 4500 | 30 | | |

| video Paramete | rs Audio I | Parameters | Advanced | Format | Graphics Overlay | | |
|---------------------|---------------|---------------------------------------|--------------------------------|----------------------------|---|---------|--------------|
| Default Language | eng | Supported Langua | ge Codes If audio | o stream is not specified, | this language will be used as default | | |
| Live Transcription | Enabling Whis | per AI Live Transcription requ | uires CPU resources fr | rom the host, which will a | ffect the overall capacity of the server. | | |
| Transcription Index | 4 2 | Calact the input surlie | terrate days they I have Trans | | | | |
| Transer prior morex | | · · · · · · · · · · · · · · · · · · · | Deck for the tive frag | nscription. | | | |
| Output | Input Index | Langua | ge | Default Language | Codec | Profile | Channel |
| Output 1 | Input Index | Langua | ge | Default Language und | Codec ac3 | Profile | Channel 0 |

Template Configurations

Select from preconfigured templates or create new one.

With 5 subtabs of detailed configurations, your streaming schedule is tailored to you.

Bitstreams Features:

- Code-free configuration of FFmpeg 7.0 for wide stream distributions
- Dashboard provides visual quick-check for:
 - Streaming Error Alerts
 - System Health Check
 - CPU/VPU capacity loads
- Generates report logs for stream status
- Template based configs for live stream sessions, set once-use many
- Web app or custom API
- Annual subscription model includes new features, bug fixes, tech support, and failover redundancy

Live Streaming:

- Supports lone-time events with several hour duration
- Input: SRT, RTMP
- Output: Dash/HLS

Live Video Encoding:

- System runs 24/7/365
- Input Support: SRT, RTMP, Dash/HLS, Multicast/UDP
- Output support: Dash/HLS, Multicast/UD
- Records to a file



For more information on NETINT encoding solutions, contact us.

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