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Astria® Content Processor Family

The most comprehensive video processing solution – from the metro core to the mobile edge



- ✓ **Digital TV Headends**
- ✓ **Broadcast Trunking**
- ✓ **Remote/Mobile Surveilence**
- ✓ **Distance Learning**

Deliver Digital Video

The Astria® Content Processor (CP) family sets the new standard in digital video processing and advanced encoding for multi-protocol video networks. Whether transporting two channels of video between facilities or sending 200 channels of digital TV to hundreds of thousands of consumer homes, the scalability of the Astria platform offers a build-to-need, high density and carrier-class video processing solution.

The Astria CP family is a third-generation system designed by the same team that helped define the MPEG-2 and MPEG-4 standards. Available in a range of form factors (from 1 rack-unit to 12 rack-units), Astria CP systems support the following video and audio processing functions:

- Encoding/decoding of MPEG-2 (4:2:0 and 4:2:2)
- Encoding and transcoding of MPEG-4 AVC / H.264
- Demultiplexing, remultiplexing and transcoding of digital streams
- Digital turn-around (transrating)
- Output of IP, IP/ATM, ATM and DVB-ASI
- Protocol conversion between ATM, IP, IP/ATM and DVB-ASI
- Digital ad insertion
- System upgradeable to High-Definition MPEG-4 AVC and VC-1

All Astria CPs are managed by a comprehensive management system.

From the Metro Core to the Mobile Edge

Service Providers across the globe use the Astria CP 1200 for digital headends to deliver broadcast TV service over xDSL, fiber and coax access networks.

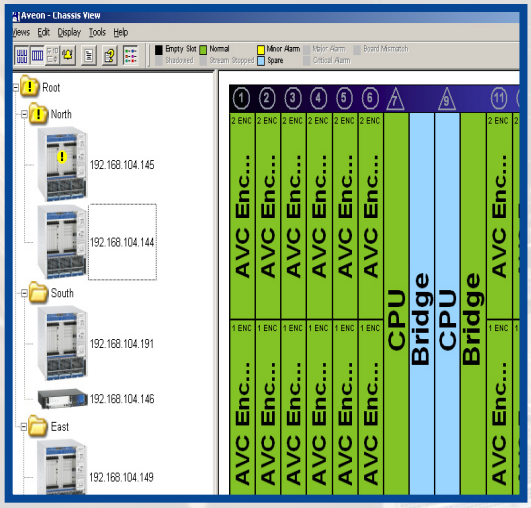
Broadcasters use the Astria CP 400 and 200 with MPEG-2 4:2:2 compression to trunk studio-quality video to affiliates and transmitter sites.

Government Agencies leverage the compact, high-performance form-factors of the Astria CP 100 and 200 for fixed and mobile video surveillance.

Whatever the application or network, Tut Systems' patent-pending ConstantStream™ technology outputs constant bit rate (CBR) video streams with less than 1% variance — eliminating the need to over-provision the network.

TUT SYSTEMS

Transforming Broadband into Services



Aveon EMS provides chassis, board and stream level detail

Certifications

UL1950 – Safety of Information Technology Equipment, including Electrical Business Equipment (Third edition, 1995)

IEC 950 – Safety of Information Technology Equipment, including Electrical Business Equipment (Second edition, 1991)

CAN/CSA C22.2, No. 950-95 – Safety of Information Technology Equipment, including Electrical Business Equipment

EN60950 – Safety of Information Technology Equipment, including Electrical Business Equipment (includes Appendix ZB)

EN55022 – EMI/RFI emission standard for CE and FCC

EN55024 – Electromagnetic compatibility standard for CE

Reliable, Flexible, Scalable

The Astria CP family offers a wide choice of chassis sizes, redundancy options, and failover protection. Multi-network support includes DS-3/E-3x, OC-12/STM-4, OC-3/STM-1 and GigE interfaces. The processed video and audio streams can be transported in MPEG-2 over ATM, IP, IP over ATM, or DVB-ASI network protocols. In summary, an Astria CP can be configured to meet your network and protocol requirements.

Future-proof Architecture

The Astria CP family is built upon industry-standard chassis augmented with DSP-based processing modules. The DSP modules run a series of QualView® applications that can demultiplex, remultiplex, decode, transcode and transrate video and audio streams in real time (see QualView Application Datasheet for further details). The Astria CP family supports next generation video compression standards such as MPEG-4 AVC/H.264 and VC-1, allowing a seamless upgrade from MPEG-2.

Astria CP Family Features:

- Wide range of chassis configurations
- Identical processing cards across all chassis
- Power supply and card redundancy options
- Software-upgradeable DSP modules
- MPEG-2, MPEG-4 AVC and VC-1
- Patent-pending ConstantStream™ rate control

Aveon® Management Applications

Aveon® element management system (EMS) serves as an operation, administration, maintenance and provisioning (OAM&P) solution. The Aveon® EMS's intuitive user interface improves administrative control over complex video network configurations to help minimize training and lower operating expenses.

The Aveon EMS controls centralized, remote, or a combination of connected Astria platforms. Aveon EMS supports standard SNMP for transmission of alerts to an upstream network management system such as HP OpenView®.

Key Aveon® EMS Features/Benefits:

- PC-based system; simple point-and-click navigation
- Scales from small to large video deployments
- Optional Guardian package for 1:N redundancy
- View status, capacity and alarms by system, chassis or board
- Simultaneous control and configuration of multiple Astria CP elements

Aveon® Device Manager:

A browser-based management application designed to offer local control and configuration of an individual chassis.

- Intuitive user interface for systems and stream setup, configuration, and control
- Web browser via Internet Explorer 6.0+
- HTTP/HTML interface from local or remote locations

Specifications

	Astria CP 100 (CP-102-XX)	Astria CP 200 (CP-204-XX)	Astria CP 400 (CP-406-XX)	Astria CP 400 (CP-408-XX)	Astria CP 1200 (CP-1216-XX)
Physical					
Rack Units	1	2	4	4	12
Height	1.75”/4.45cm	3.5”/8.89cm	7”/17.78cm	7”/17.78cm	21”/53.3cm
Width	18.9”/48cm	18.9”/48cm	18.9”/48cm	18.9”/48cm	18.9”/48cm
Depth	11.81”/30cm	11.81”/30cm	14.2”/36.07cm	11.81”/30cm	17.13”/43.5cm
Weight	8.5 lbs/3.86Kg	11.2 lbs/5.1Kg	35 lbs/16kg	23.5 lbs/10.6 Kg	70 lbs/32 kg
Modules					
Available Slots	2	4	6	8	16
Supports Transport Interface on CPU	✔	✔	✔	✔	
Supports Peripheral Transport Interface card	✔	✔	✔	✔	✔
Maximum Encode Channels	2	6	10	14	22
Maximum Stream Processor Channels	16	96	150	150	300
Maximum Decode Channels	4	12	20	28	44
Maximum # of Transponder inputs	4	12	20	28	44
Power					
Minimum Power Supplies	1	1	1	1	2
Maximum Power Supplies	1	2	1	3	3
AC Power Specs (per Power Supply):					
Voltage	100-240V	100-240V	100-240V	100-240V	90-132V, 190-263V
Frequency	50-60Hz	50-60Hz	50-60Hz	50-60Hz	47-63Hz
Amps	3.6A Max	6.3A Max	4A Max	6.3A Max	10A Max
DC Power Specs (per Power Supply):					
Voltage	-48V	-48V	-48V	-48V	-36V to -72V
Amps	6.55A	10A	7A	10A	10A Max
Power Factor Corrected	0.99	0.99	n/a	0.99	n/a
Environmental					
Operating Temperature	5C to 45C	5C to 45C	5C to 45C	5C to 45C	5C to 40C
Non-Operating Temperature	-40C to 65C	-40C to 65C	-40C to 65C	-40C to 65C	-40C to 70C
Operating Humidity	20% to 80%	20% to 80%	20% to 80%	20% to 80%	10% to 90%
Non-Operating Humidity	5% to 90%	5% to 90%	5% to 90%	5% to 90%	5% to 90%
Management and Redundancy					
Aveon Device Manager	✔	✔	✔	✔	✔
Aveon Element Management System	✔	✔	✔	✔	✔
High Availability Options		✔	✔	✔	✔
Power Redundancy		✔		✔	✔
CPU Redundancy					✔
NIC Auto Failover		✔	✔	✔	✔
Processor Auto Failover		✔	✔	✔	✔

Additional Equipment Information

ASTRIA CONTENT PROCESSOR PLATFORMS

CH-1216	Astria® Content Processor 1200 chassis (12RU Chassis, 16-slots)
CH-408	Astria® Content Processor 400 chassis (4RU Chassis, 8-slots)
CH-204	Astria® Content Processor 200 chassis (2RU Chassis, 4-slots)
CH-102	Astria® Content Processor 100 chassis (1RU Chassis, 2-slots)

COMMON COMPONENTS

CPU-366-HA	366 Mhz CPU Board for Astria CP 1216 platform
CPU-366-T	366 Mhz CPU Transition Board for Astria CP 1216 platform
CPU-366-BR	366 Mhz CPU Bridge Board for Astria CP 1216 platform
CPU-600	600 Mhz CPU Board for Astria CP 408/204/102 platforms
PS-1216-AC/DC	AC/DC Power Supply for Astria CP 1216 platform
PS-250-AC/DC	AC/DC Power Supply for Astria CP 408/204/102 platforms

NETWORK INTERFACE CARDS

PMC-GIGE-C	Gigabit Ethernet PMC, RJ45 Copper
PMC-GIGE-F	Gigabit Ethernet PMC, LC Multimode Fiber
PMC-GIGE-SF	Gigabit Ethernet PMC, LC Singlemode Fiber
PMC-OC12-S	OC12/STM4 ATM or IP/ATM PMC, SC Singlemode
PMC-OC3-M	OC3/STM1 ATM or IP/ATM PMC, SC Multimode
PMC-OC3-S	OC3/STM1 ATM or IP/ATM PMC, SC Singlemode
PMC-DS3	DS3/E3 UNI ATM or IP/ATM PMC, BNC
NIC-600	Peripheral Network Interface Carrier Card w/ 2 PMC Slots, 600 Mhz

ENCODER CARDS

ENC-E2	Advanced Encoder Card, MPEG-2 4:2:0, 2-Channel (4:2:2 Encoding license additional)
ENC-T2	Encoder Transition Card

STREAM PROCESSOR CARDS

SP-A4	Quad Stream Processor Card
SP-B1	Multi Stream Processor Card
SP-ASI-T	ASI Transition Card
SP-DHEI-T	DHEI Transition Card
SP-DEC-T	Decoder Transition Card

QUALVIEW APPLICATIONS

Details of these applications and software licenses are provided in the ***QualView Applications*** data sheet

AVEON ELEMENT MANAGEMENT SYSTEM (EMS)

Details of the server hardware and software licenses are provided in the ***Aveon Management Applications*** data sheet

SERVICE OFFERINGS

Details of the service agreements and training programs are provided in the ***Rapid Response*** and the ***Video Solutions Training*** data sheets

TUT SYSTEMS

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About Tut Systems, Inc.

Tut Systems, Inc. (NASDAQ: TUTS) delivers industry leading content processing and distribution products for deploying next-generation data and video services over broadband networks. Service providers, content providers and government agencies throughout the world use Tut Systems solutions to deliver broadcast-quality video over broadband networks. Tut Systems is a world leader in delivering digital TV over xDSL networks. The company is headquartered in Lake Oswego, OR with regional offices across North America, Europe and Asia. For more information visit www.tutsys.com or call 971-217-0400 or toll free 877-225-7255.

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