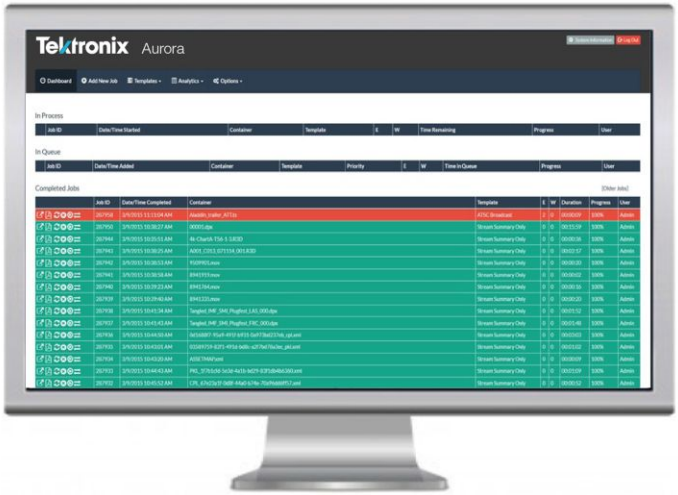
Tektronix®

Automated File-based Quality Control System

Aurora Datasheet



Aurora is an automated QC system to help media providers drive efficiency, quality and cost savings into their workflows. Based on Tektronix expertise, Aurora reliably validates high volumes of content for Quality, Compliance and Syntax. Aurora is a 24x7 enterprise solution allowing unattended operation so providers can fully QC increasing volumes of linear and OTT content. A comprehensive API eases workflow integration and configuration, reducing cost of ownership in both on-premise and cloud based systems. Tektronix world-class support protects the investment made by customers, ensuring Aurora is kept up to date in a world of changing standards and formats.

Key features

- Automated file QC for production, playout and VOD
- Fast and accurate checks for Quality, Compliance and Syntax validation
- Supports majority of the industry formats such as the latest 4K, UHD and HDR standards
- Comprehensive web-services API for automation
- Enterprise class solution for cloud and on-premise deployments
- Graphical information to quickly access problems and enable users to determine the root cause

Automated file-based QC with Aurora

Aurora is the enterprise level, automated file-based QC tool that integrates into your file-based workflow and consistently delivers dependable results. By eliminating false positives and correlating human audio and visual perception, Aurora ensures that test reports highlight the key gating issues, not hundreds of irrelevant ones.

The unique Aurora architecture and optimal use of both CPUs and GPUs ensures concurrent analysis of more file types at faster speeds than competing solutions. Aurora provides configurable CPU core allocations to optimize hardware utilization, while providing an upgrade path for future expansion.

Whether you are applying metadata gate-keeping during ingest, detecting visual and audible artifacts, identifying common editing errors, or testing for specific broadcast and distribution constraints, Aurora will have a positive impact across your workflow.

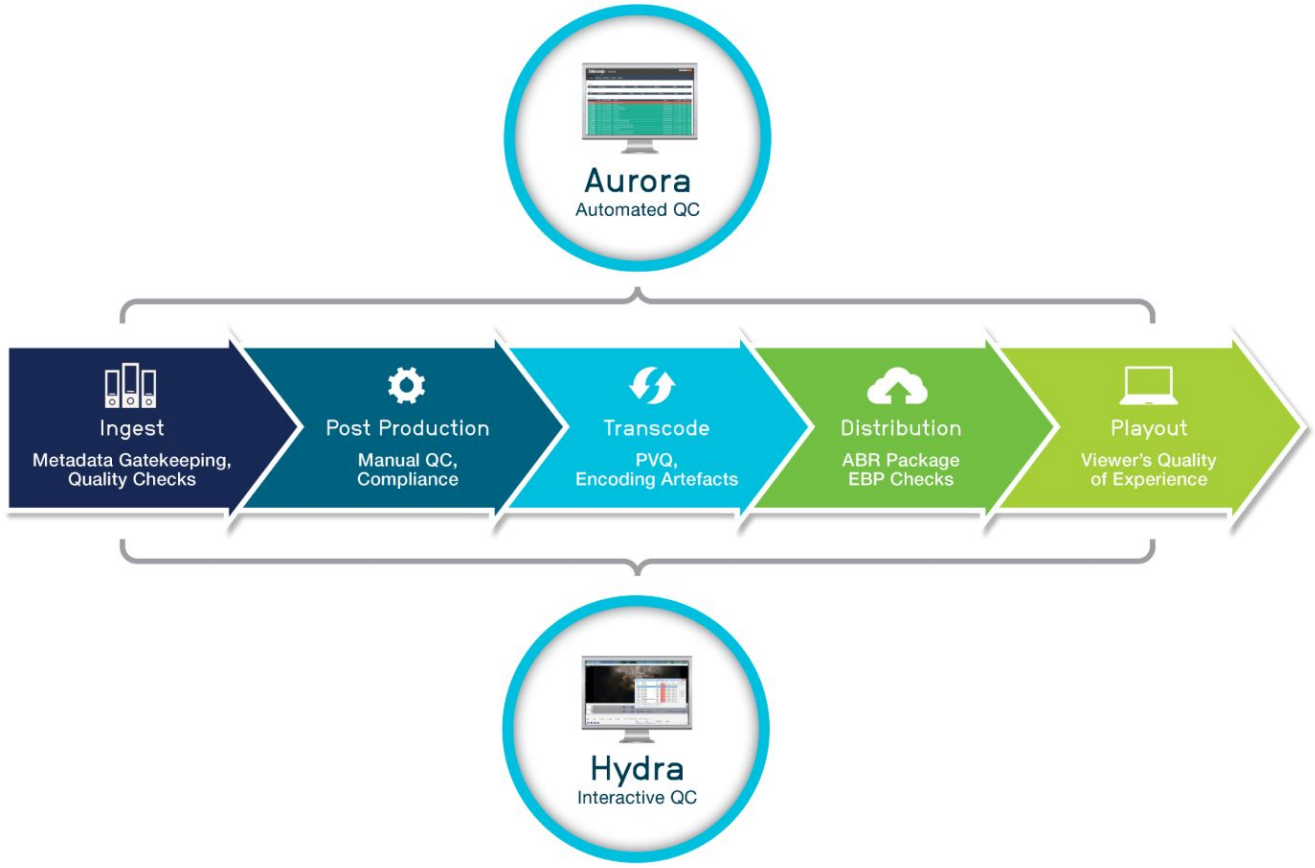
The Aurora architecture is based on an Aurora Controller managing the workload queue for one or more Verification Units (VU) running on standard or customized test templates. The templates can be instantly changed based on workflow requirements. Additional VUs may be added to any Controller at any time to rapidly scale throughput performance.

Aurora Standard VU

The entry level Aurora Standard VU enables allocation of up to four CPU cores for an average throughput performance of up to 5x faster than real time for SD files and real time for HD files.

Aurora Professional VU

Our most popular platform, Aurora Professional VU enables utilizing the available CPU core per VU for maximum throughput and supports up to two GPU modules. When fully hardware configured, this platform can analyze SD files at speeds up to 13x faster than real time, HD files up to 4x real time, and 4K files up to real time.



Aurora is an enterprise-level automated QC solution for detecting the quality of file-based content at multiple points throughout the workflow, including from content creation to delivery.

Aurora delivers analysis speed and accuracy

Guaranteed QC capacity

Aurora guarantees QC throughput speeds by reserving CPU and GPU capacity so the system does not slow down as the test queue increases. This results in a single file being analyzed as fast as that same file with hundreds of other concurrent jobs in progress.

Broad codec and wrapper support

As a result of constant participation in key standards committees (EBU, SMPTE) and industry working groups (AMWA, FIMS, DPP), Aurora maintains the latest codecs and wrappers with new updates arriving as available. This means that almost any file you can make, Aurora can test.

Powerful user interface

Aurora has an efficient user interface based on a wide range of customer feedback with a consistent information layout, user-defined theme/colors and a growing variety of display language scripts in both the user interface and QC reports. Current support includes English, Japanese, Korean and Simplified Chinese character sets.

Easy-to-use QC reports

Aurora job reports are a single easy-to-read page displaying all of the metadata in one location followed by an interactive error summary including frame-accurate access through our Hydra Player. The report is consistent in look and content whether viewed through a Web browser or as a PDF.

Fast access Help files

Aurora provides Help files for every test, instantly accessed from test templates or reports, providing an explanation of each individual test, how the test is performed, recommended correction(s), and where to in the workflow may be the best location to perform the fix.

Email notification

Aurora email notifications ensure that regardless of the receiving email device there is appropriate information provided for decision making or further action. Emails contain summary info and a HTML link to the full QC Report, and optionally the PDF version.

Unrivaled, scalable speed

Aurora was the first file-based QC product engineered to dynamically allocate compute threads across a user-specified number of CPU cores, enabling performance and scalability in high density virtual and blade environments. Using high CPU allocation or a lower CPU allocation combined with Aurora's unique GPU accelerated processing capability, QC throughput approaching wireline limits can be achieved, rather than being constrained by a legacy decoding, buffering and testing architecture.

QC report analytics

Aurora includes QC Analytics to enable media organizations to analyze results of multiple QC Reports and search across reports for specific criteria. Aurora can identify QC artifact trends and compare results from QC done at different workflow stages, pipeline issues and trends or identify vendors for KPI and SLA documentation.

4K production work flow

Aurora can test and play back the Interoperable Master Format (IMF), the distribution master format agreed on by major motion picture studios, and the supplemental IMF packages. Aurora has the ability to QC and play back complex Composition Play Lists (CPLs) and can test 4K at real-time or faster in any other container or codec, including JPEG 2000, DPX, DNxHR, HEVC, H.264/AVC/AVCI/XAVC. [1]

Enhanced Adaptive Bit Rate (ABR) support

Aurora is the first file-based QC solution on the market capable of both testing and playing back HLS/HSS/HDS/DASH and CableLabs intermediate ABR playlist file sets. Aurora includes tests that have been specifically designed to catch the most common causes of adaptive bit rate streaming problems.

Minimal false positives

Aurora algorithms are designed to reduce false positives, ensuring an accurate QC report. Tektronix operates a unique machine learning loop that ensures that continuous accuracy improvements of test algorithms based on customer supplied files with known QC artifacts.

Video essence tests

Aurora video essence tests include Macro-block Noise, Up-conversion, Picture Quality (TekMOS, Perceptual Video Quality), Comb Artifacts, Field Order Swaps, Tape/Digital Hits, Perceptual & Film Artifacts, Black/Freeze Frames, Letterboxing/Pillarboxing, Dead Pixel Detection, Color Bars, PSE/Flash Detection (Harding FPA), and Cadence Change.

Audio essence tests

Aurora audio essence tests include Silence, Drop-outs, Peaks (dBTP, PPM, dBFS), Average Levels (R128, ATSC, ARIB), Clipping, Snaps/Clicks/Pops, Test Tones, Phase Swaps and Hiss/Hum. Aurora also applies a user-defined Audio Service Map for processing AES wrapped tracks or when mono channel audio essence tracks are tested together.

Metadata tests

Aurora metadata tests include Container Syntax, Video Essence Syntax, Caption Syntax, Container Essence Contents, Cross-Check Container-Essence, Rude Word Detection in Text, Start Time code, Time code Discontinuity, Video Resolution and Run-times. Additional metadata tests for Dolby Audio Syntax and Dolby E Guard Band Alignment are included with the optional Dolby codecs.

Distribution constraint tests

Aurora has predefined tests for most popular distribution formats, including CableLabs VOD, CableLabs ABR/EBP, iTunes, Netflix, ATSC, DVB, ISDB-T/TB, XDCAM/RDD-9, AS-02, AS-10, AS-10 French PAD and DPP/AS-11.

Automated workflows

Aurora includes tools for implementing end-to-end workflows, including Smart Test Plans for automatically applying test plans to your incoming files, and a Decision Engine that enables automated post QC test file movement and corrective actions.

Systems integration

Aurora QC includes an easy to use SOAP API, as well as the legacy CeriTalk API, allowing leading vendors to seamlessly integrate Aurora QC into their solution workflows. Major partners include Amberfin, Aspera, Astec, Imagine Communications, Telestream, iBroadcast, DataMiner, Vidispine, Dalet, and FileCatalyst.

1 Optional codecs are available for access to Canopus and HEVC decoders, and to enable GPU acceleration to the native capability of the JPEG 2000 decoder.

Supported formats

Aurora supports the following file formats. Please contact Tektronix for the latest listings.

Container wrappers

MXF (All OP, including AMWA defined AS, RDD-9, P2, SxS), Transport Stream, Elementary Stream, Program Stream/VOB, AVI, WMV/ASF, QuickTime/MOV, GXF, MP4, LXF, R3D, DPX, DXW, HLS, DASH, Smooth Streaming, IMF, and DCP (unencrypted).

Video codecs

H.265 (HEVC), H.264 (AVC/AVC-Intra/XAVC), MPEG-2 (including XDCAM, IMX and D-10), ProRes, JPEG 2000, DNxHD and DNxHR (VC-3), Cineform (VC-5), VC-1 (and WMV), DV/DVCPro, Flash VP-6/7, RAW (Huffman, YUV, RGB, Blackmagic), EXR, DPX, RED, Canopus, and MPEG-4 (SStP). [1]

Audio codecs

Standard codecs include PCM Audio (WAV/AES/BWF), AAC, HE-AAC, WMA Standard Pro, MPEG-2 (L1,2,3) and MPEG-1. Audio correction is available on constant bit rate codecs only. Optional codecs are available to support Dolby Digital (AC-3), Dolby Digital Plus (EAC-3), Dolby TrueHD (MLP), and Dolby E.

Captions / subtitles / text

CEA-608/CEA-708 in Line 21 video, ATSC 53, DVB-Teletext, SCTE 20, SCTE 128 and SMPTE 436M; SMPTE Timed Text and variations, including DFXP; EBU Subtitles, including STL; SRT; SCC.

Ordering information

Please contact your Tektronix Sales Representative to understand how Aurora may be customized for your specific workflow needs and content volume.

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Tektronix is registered to ISO 9001 and ISO 14001 by SRI Quality System Registrar.

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For Further Information. Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit www.tek.com.

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