DaletBRiO

Flexible Broadcast I/O Technology

Dalet BRiO is an innovative and cost-effective platform for broadcast customers looking for non-proprietary hardware to digitize and playback their content, either as a complement or replacement of their existing video servers. Built on an IT-based input and output video platform, it transparently integrates with Dalet solutions to provide a highly flexible end-to-end workflow.

DALET

Dalet BRiO units are designed to ingest and playout broadcast quality video in SD and HD formats. They come in a variety of I/O (up to 4in and 4out) and storage combinations (local or direct connection to SAN). Dalet BRiO is built using a combination of cost-effective standard IT components with built-in redundancy. In a compact 2 RU chassis, BRiO delivers reliability and performance while simplifying/optimizing
the overall infrastructure thanks to its unique "Ingest Once Write Many" feature.

First released in 2006, several hundred Dalet BRiO units are already deployed, making it a reliable and well proven platform.

Flexible platform
for many different workflows

Dalet BRiO is designed for seamless integration with other applications to meet the needs of Sports, Newsroom, Program Management and Archive workflows. Those applications can run as standalone applications, or can be an integral part of MAM-driven workflows provided by Dalet Enterprise Edition, Dalet Media Life, Dalet News Suite and Dalet Sports Factory.

Functional highlights

- Cost effective open platform based on standard IT components
- Innovative architecture: local attached storage or direct connection to SAN
- Different capacity and I/O configurations (up to 4 in /4 out, up to 200h@100 Mb/s)
- Wide range of supported codecs
  - Proxy (MPEG-2 iFrame, MP4 H264, WM9)
  - SD (DV25, DV50, DVCPro25, DVCPro50, IMX, MPEG-2 I-Frame & Long GOP)
  - HD (DVCProHD, HDV, MPEG-2 I-Frame & IBP, XDCAM HD 4:2:0/4:2:2, Apple ProRes 422LT-422-422HQ, AVC-Intra, DNxHD)
- Back-to-back playout of mixed formats (SD-HD, Interlaced-Progressive, multi-codecs, 4/3-16/9)
- Multicast (one playlist, multiple outputs – SD,HD, with Graphics...)
- Pass-through or time delay for feeds
- Embedded graphics capabilities
- Aspect ratio management (WSS, AFD)
- VANC Management for subtitle and timecode, VBI support
- Instant Replay and Slow motion capabilities with Media Replay tool (jog/shuttle control for all formats including MPEG-2 Long GOP)
- Multicam, Video + Key and 3D modes
- Designed for infrastructure simplification and optimization
- Ingest Once Write Many (simultaneous creation of Proxy/SD/HD on multiple storages)
- Direct attachment to SAN (no more upload/download migrations)
- Embedded graphic capabilities (Crawl, Still, Animation sequence, Text)
- Closed caption support (VBI, VANC)
- Dolby-E preservation
- Integration with DALET and Third party through open IT technologies (VDCP, VDCP over IP, API)

Flexible codec support

Dalet BRiO supports a very wide range of software codecs. In order to ensure wide interoperability, industry standard wrappers such as MXF or MOV and AVI are supported, allowing for seamless workflow integration with third party NLEs and Dalet production tools. Support for DV based codecs includes DV25, DVCPro 25 and 50 and DVCProHD. MPEG support ranges from MPEG2 Long GOP, IMX to XDCAM HD and H264 Other formats such as Apple ProRes and DNxHD are also supported. All these formats can be played out back-to-back seamlessly, with up- and down-conversion when required.

Innovative system architecture

Dalet BRiO can work either with its own local storage or directly attached to a SAN or even in a hybrid configuration. Units can be added with ease to an existing Dalet solution, so you can dimension your infrastructure for your immediate purpose, while ensuring future scalability, whether it's massive ingest for a MAM project or news playout for your newsroom upgrade.
Dalet BRiO can be integrated with your system monitoring (SNMP compliant) or can be monitored with the Dalet Dashboard.

Rich feature set

Dalet BRiO can play any supported files, including a mix of SD and HD, on the same timeline. It allows for on-the-fly cross-, up- and down-conversion of the video signal, as well as aspect ratio modifications.

Dalet BRiO supports up to 4 in and 4 out. It can be controlled by a variety of third party applications and devices.

Application and device control

Preview modes

Program modes

Dalet BRiO can have its own local storage, or can be connected to a SAN, using a Fibre Channel connections. This can significantly decrease infrastructure costs on medium and large installations.

Fibre Channel

Dalet BRiO in Sports

In Sports, Dalet BRiO manages video feeds and video playout applications for live coverage and for sports shows such as magazines and sports news.

The Dalet Media Replay application allows for Instant Replay and Slow Motion playout during live events. With its Dalet control panel, Dalet Media Replay controls the outputs of Dalet BRiO and provides clip and playlist management, delay functions for live and near-live presentation, transitions and video routing.

Dalet Sports Logger and Dalet Hilites Espresso applications are the perfect combination to log live games and events and create highlights to ease magazines and sports show production. Dalet BRiO is connected to those applications to ensure video ingest, preview, and live playout Connected to Dalet Sports Factory, Dalet BRiO provides video ingest in multiple formats while Dalet Sports Factory enables video playout and media distribution of sports content to multiple devices.

Dalet BRiO in News

In News, Dalet BRiO can be connected to Dalet News Suite to provide fast-paced ingest, news production and playout workflows. For ingest, Dalet BRiO is controlled by Dalet Ingest, the centralized acquisition tool. Once a new ingest starts, both the high resolution and the proxy resolutions are immediately available to users for preview and editing. This providess a very fast turn-around for playing content to air using Dalet On Air, with or without video editing, even while ingest goes on.

Dalet BRiO in Media Management and Archives

Connected to Dalet Media Life, Dalet BRiO offers ingest in a very cost effective way. Thanks to the "Ingest Once Write Many" feature, Dalet BRiO can record video feeds in both high resolution (SD/HD) and proxy resolution. This avoids the use of conversion farms and can reduce traffic on the network, dramatically decreasing infrastructure costs.

Dalet BRiO in a Studio

Dalet BRiO along with Dalet Media Navigator application is a cost effective and flexible solution for studio ingest and playout. Dalet Media Navigator controls up to 4-in and 4-out of a Dalet BRiO server. It can overlay graphics and stills using TGA, TGA sequences or jpg pictures. To ingest material in the Media Navigator, users can use the crash recording function and reference the videos in a Studio MAM or simply drag and drop file in any supported format in this browser. Media Navigator supports playlist playout and manual playout in any supported format back-to-back, as well as time delay and loop playout.

Dalet BRiO controlled by 3rd party Automation or other systems

Dalet BRiO can also be controlled using VDCP, BVW or its API protocol. Connected to 3rd party automation systems or to other type of systems makes it a cost effective solution. With its flexible, software-based, wide range of codec and its innovative, IT-based architecture, Dalet BRiO is a component of choice for your video infrastructures. It supports back-to-back playout or A/B Roll mode, direct live input, and can embed graphics.
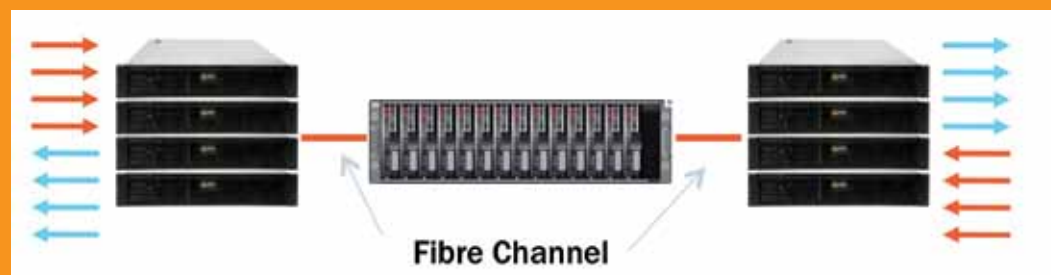
Dalet BRiO configurations

BRiO units can come in any of the following configurations:

Channel Configurations
- Video Input / Output
  1 in / 2 out multi-rate HD / SD SDI
  2 in / 4 out multi-rate HD / SD SDI (or 2 video+key)
  4 in / 4 out multi-rate HD / SD SDI (or 2 video+key)
- Input only
  4 multi-rate HD / SD SDI video inputs only
- Output only
  4 multi-rate HD / SD SDI video outputs only

All channels are usable simultaneously.
All channels support "Ingest Once Write Many".

Onboard storage Configurations
Based on 12 usable drives (+/- 10%):
- 146 GB Drives will provide 33 hours @ 100Mb/s, 66 hours @ 50Mb/s
- 300 GB Drives will provide 68 hours @ 100Mb/s, 136 hours @ 50Mb/s
- 600 GB Drives will provide 136 hours @ 100Mb/s, 272 hours @ 50Mb/s
- 1.2 TB Drives will provide 272 hours @ 100Mb/s, 544 hours @ 50Mb/s

Additionnal on board storage can be defined per request.

Codec / Wrapper Support

SD File Format:
- MPEG-2@ML 4:2:0 I-Frame 2-15 Mb/s
- MPEG-2@ML 4:2:2 Long GOP 10-50 Mb/s
- D10 IMX 30-40-50
- DV25, DV50
- DVCpro25, DVCPro50

Proxy File Format:
- Proxy MPEG-2 iFrame
- Proxy MP4 H264
- Windows Media 9

Graphics File Format:
- TGA, BMP, JPG, TGA sequence

HD File Format:
- MPEG-2@HL 4:2:0 I-Frame 5-80 Mb/s
- MPEG-2@HL 4:2:2 Long GOP 5-300 Mb/s
- HDV
- DVCProHD
- XDCAM HD 4:2:0 (18-25-35 Mb/s)
- XDCAM HD 4:2:2 (50 Mb/s)
- XDCAM EX playout
- Apple ProRes® 422LT-422-422HQ
- Avid DNxHD® 120/145 Mb/s
- Avid DNxHD® 185/220 Mb/s 8-bit and 10-bit
- H264/AVC – Main-High Profiles 4:2:2
- AVC-Intra – Class 50/100

General Specifications

Video specifications
SD SDI: SMPTE 259M, ITU-R601, 525/625 line component, 10-bit
HD-SDI: SMPTE 292M, 10-bit
75 Ohms BNC
ITU-R BT.601 (data and electrical)

Dynamic conversions
Up/Down conversion: PAL↔1080i50, PAL↔720p50, NTSC↔1080i59.95, NTSC↔720p59.95
Cross conversion: 720p50↔1080i50, 720p59.94↔1080i59.94
Aspect ratio conversion: AFD and WSS support for aspect ratio conversion (per channel)

Special modes
Instant Replay and slow motion
Video + key
3D Mode

Multicam video playback
Any supported format can be played seamlessly back-to-back

Audio
Record and play up to 16 tracks

Embedded audio tracks
16 tracks embedded per channel SDI (8AES-EBU)
Supports SDI embedded audio compliant with SMPTE 272M (SD) and SMPTE 299M (HD)

Discrete AES/EBU audio tracks
Up to 16 tracks per channel (8 AES-EBU)

Audio specifications
Input : 48 kHz, 16-bit, 20-bit or 24-bits digital audio PCM

Audio clock genlocked to video reference in accordance

with SMPTE 272M and AES11-1997
Compressed audio types: Dolby-E pass-through

Audio playback
Any video clip with supported audio format can be played seamlessly back-to-back

Reference Genlock
Analog blackburst reference (tri-level or bi-level), SDI input as reference or free running mode.
External termination with LOOP connector
Sub-pixel adjustment at 0.9 ns/step with respect to genlock in SD
Sub-pixel adjustment at 0.7 ns/step with respect to genlock in HD
Flywheel on genlock
Connector: BNC, 75 Ohms with loop through

Timecode
LTC SMPTE 12M for external "house" timecode
Connector: Mini-XLR
LTC and VITC reader/writer per channel
HANC timecode support

Dimensions (without additional storage shelves)
Width: 45.13 cm (17.77 in.) – including rails
Height: 2 RU 8.9 cm (3.5 in.)
Depth: 83.82 cm (33.0 in.)
Weight: 28 kg (60 lbs) maximum

Power requirements
Dual redundant Power supply, 750W hot-swap
50-60 Hz, 100-240 VAC

Environmental characteristics
Operating temperature :+10°C to +35°C
Non-operating temperature(not in use):
-40°C to +70°C

Redundancy
Dual hot swappable power supplies
RAID1 for system drives
RAID50 for data drives
Hot spare drives
Dual/Quad network attachement
Dual FC attachement

Monitoring
SNMP monitoring
API monitoring

Ports
Four 100/1000Base-T Ethernet ports
Two USB 2.0 front, two USB 2.0 rear
Two PS/2 rear
One RS-232 serial port (additional ports with optional board)
One 15-pin SVGA

File transfer protocols
CIFS
FTP
FC

Control
Harris VDCP (REQ, some optional commands)
VDCP over IP (REQ, some optional commands)
Sony BVW75 API

Monitoring
Customizable text overlay per channel (channel name, file name, time code, play speed,…)
VGA Preview for each channel

Wrappers
MXF Op1a, MXF Op Atom, GXF, MOV, AVI, MPG, MP4

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