SAPPHIRE is a versatile product family of MPEG-2 TS servers, designed to record and playback several digital MPEG-2 DVB or ATSC Transport Streams. Each SAPPHIRE video server is tailored to provide a cost-effective solution for ad insertion, program play-out, time delay, NVOD and store & forward applications.

**Key Benefits**

- Frame Accurate Record and Playback of MPEG-2 Transport Streams files
- Support for SD & HD
- Seamless splicing (live to live, live to disk)
- Support for inband (SCTE30/35) or out of band commands (GPI)
- Multiple playlists management: edit, save and import (hot folder mechanism)
- Scaleable storage (SCSI, SATA, FC) with RAIDsecurity
- Superior remultiplexing capabilities (OpenMux Technology®)
- Interfacing with most popular automation systems through VDCP
- MXF transport Stream unwrapper
SAPPHIRE COST-EFFECTIVE MPEG-2 TS SERVERS

Overview

SAPPHIRE product family comprises a range of five tailored cost-effective and leading-edge MPEG-2 TS video servers dedicated to fit broadcasters’ specific needs:

- SAPPHIRE Record & Play-out platform for low cost play-out.
- SAPPHIRE Time-delay for broadcasting to multiple time-zones.
- SAPPHIRE Ad Splicer, which combines video server and TS splicer functionalities for Digital Program Insertion (SCTE35 compliant).
- SAPPHIRE Ad Streamer that works in conjunction with an external TS splicer for Digital Program Insertion (SCTE30).
- SAPPHIRE Full Server, which offers in a single chassis, all the functions available on the above SAPPHIRE offerings.

Main Features

- Frame accurate Record and Playback of MPEG-2 Transport Stream files
- Simultaneous Play-Back of 4 SD channels plus one HD channel.
- De-multiplexing capability to select specific programs from the incoming multiplexes
- PID/Program remapping
- Seamless splicing in the MPEG-2 domain (live to live, live to disk)
- Record-list and playlist scheduling on a weekly basis
- Automatic import of playlist and assets through hot folders
- Time delay capabilities for one or several incoming streams, from seconds to hours.
- Simultaneous re-multiplexing of several playlists, live or delayed streams in real time to create a fully MPEG-2, DVB, ATSC compliant multiplex, which can be directly connected to a modulator.
- MXF unwrapper for Transport Streams
- Client application for Configuration and Supervision can be launched on a remote system via TCP/IP.
- Frame-accurate editing of the stored stream, by setting begin and end locators.
- SI/PSIP insertion when coupled with Thales JADE/PEARL EPG solutions
- High reliability storage (RAID)
- Automation control through multiple interfaces (VDCP, SCTE30, SCTE35)

Typical Applications

With SAPPHIRE, Thomson has designed a comprehensive server to best address customized applications’ needs.

Multiple Channel Play-out

Most MPEG-2 TS servers today are cost-effective and preserve initial MPEG coding quality. While doing this, they make one unacceptable compromise: They limit transitions to GOPs and are not Frame accurate.

By locally decoding GOPs around transitions and by converting on demand any B or P frame into an I frame, SAPPHIRE servers are Frame Accurate and integrate seamlessly compressed play-out workflows. By removing the traditional GOP barrier while preserving the content quality, SAPPHIRE servers interact with automation systems pretty much the same way baseband servers do. Interfaced with Thales’ SI/PSIP solutions (JADE & PEARL), SAPPHIRE is a self-contained broadcast station.

Sapphire can manage up to 4 SD channels plus 1 HD channel simultaneously.

Ad Insertion

(digital program insertion)

By combining splicing technologies and the latest SCTE standards, SAPPHIRE implements ad insertions seamlessly. In addition, SAPPHIRE interfaces with all standard splicers (SCTE30). This provides broadcasters with the opportunity to maximize revenues and handle different advertising market requirements, while saving on cost.

Time Delay

SAPPHIRE performs record and playback with programmable delays enabling broadcasters or contribution operators to manage different time zones.

nVOD

SAPPHIRE time delay and multiplexing capabilities are perfectly suited to nVOD applications, where the same program is broadcast on multiple channels with a fixed time shift.

Store and Forward

SAPPHIRE performs stream acquisition at the network operation center and play-out at the edge. Apart from the scheduling and bandwidth management, SAPPHIRE can be deployed on multiple reception sites at an affordable price. The Store, Forward and Play-back process can be automatically performed, using hot folder capabilities.
Physical Characteristics
- 3U optimized rackable platforms
- Internal storage: up to 5 TeraBytes of internal storage
- Optional external storage (SCSI or Fibre channel)
- ASI interface

Ordering Information

<table>
<thead>
<tr>
<th>Ordering number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TNM-514x*</td>
<td>Record &amp; Playout</td>
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<tr>
<td>TNM-512x</td>
<td>Ad Splicer</td>
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<td>TNM-511x</td>
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<tr>
<td>TNM-515x</td>
<td>Ad Streamer</td>
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<tr>
<td>TNM-511x</td>
<td>Full Server</td>
</tr>
</tbody>
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*Numbers of ASI I/O pairs

Please contact Thales for further details on SAPPHIRE’s available options.

Video Store and Forward Environment

SAPPHIRE Play-out includes:
- QPSK Receiver (option)
- Qpcast Client

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- QPSK Receiver (option)
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Client Station
Sydney

Ingest & Transmission
Los Angeles

MPEG-2 Encoder

ASI

MPEG-2 Video Server

SAPPHIRE

File Transfer

OpenCast

IP to MPEG-2 Encapsulator

OPAL

IP Encapsulation

QPSK Modulator

Video Store and Forward Environment
About Thomson

Thomson (Euronext Paris: 18453; NYSE: TMS) provides services, systems and technology to help its Media & Entertainment clients – content creators, content distributors and users of its technology – realize their business goals and optimize their performance in a rapidly changing technology environment. The Group is the preferred partner to the Media & Entertainment Industries through its Technicolor, Grass Valley, RCA and Thomson brands.

For more information: www.thomson.net.

Thomson’s Systems and Equipment division develops video and film technologies, products and services sold to all major Hollywood studios, all major television, satellite, and cable broadcasters under the Grass Valley brand-name for the delivery of analog and digital entertainment. The division also includes Thomson’s Broadband Access Products Business, which develops technologies and products for broadband and telecommunication networks to deliver digital entertainment and data to consumers and businesses.